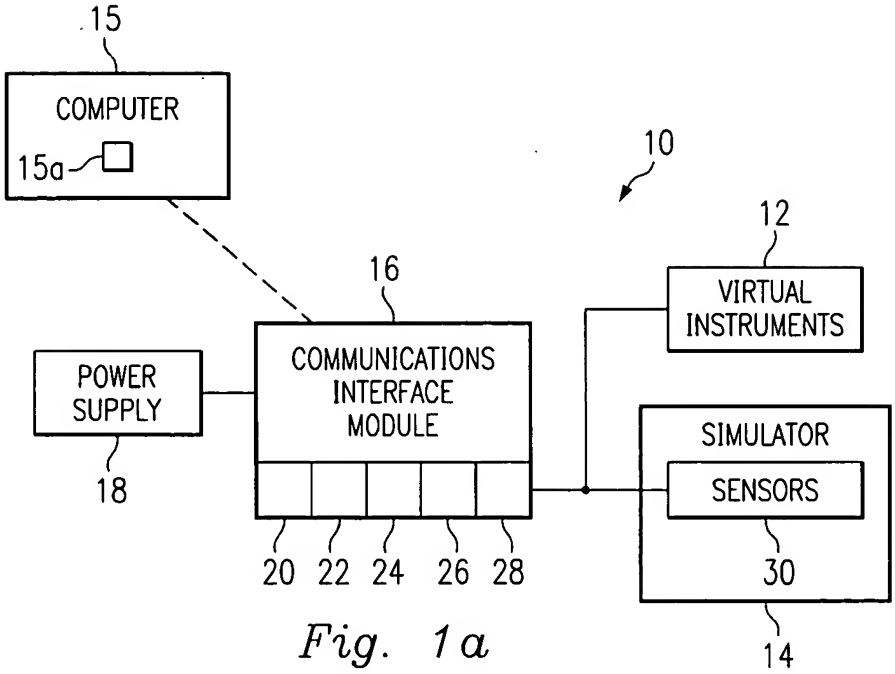

15
COMPUTER
15a
10
12
VIRTUAL INSTRUMENTS
16
COMMUNICATIONS INTERFACE MODULE
POWER SUPPLY
18
SIMULATOR
SENSORS
30
14
20
22
24
26
28

Fig. 1a

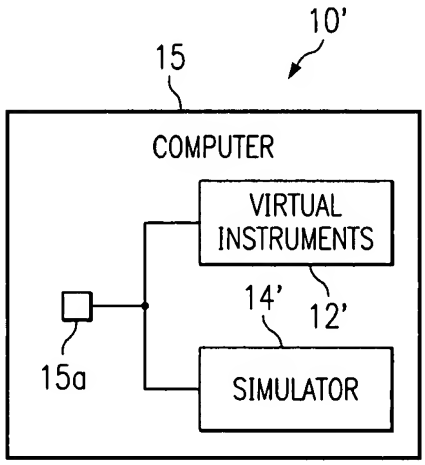

10'
15
COMPUTER
VIRTUAL INSTRUMENTS
14'
12'
15a
SIMULATOR

Fig. 1b

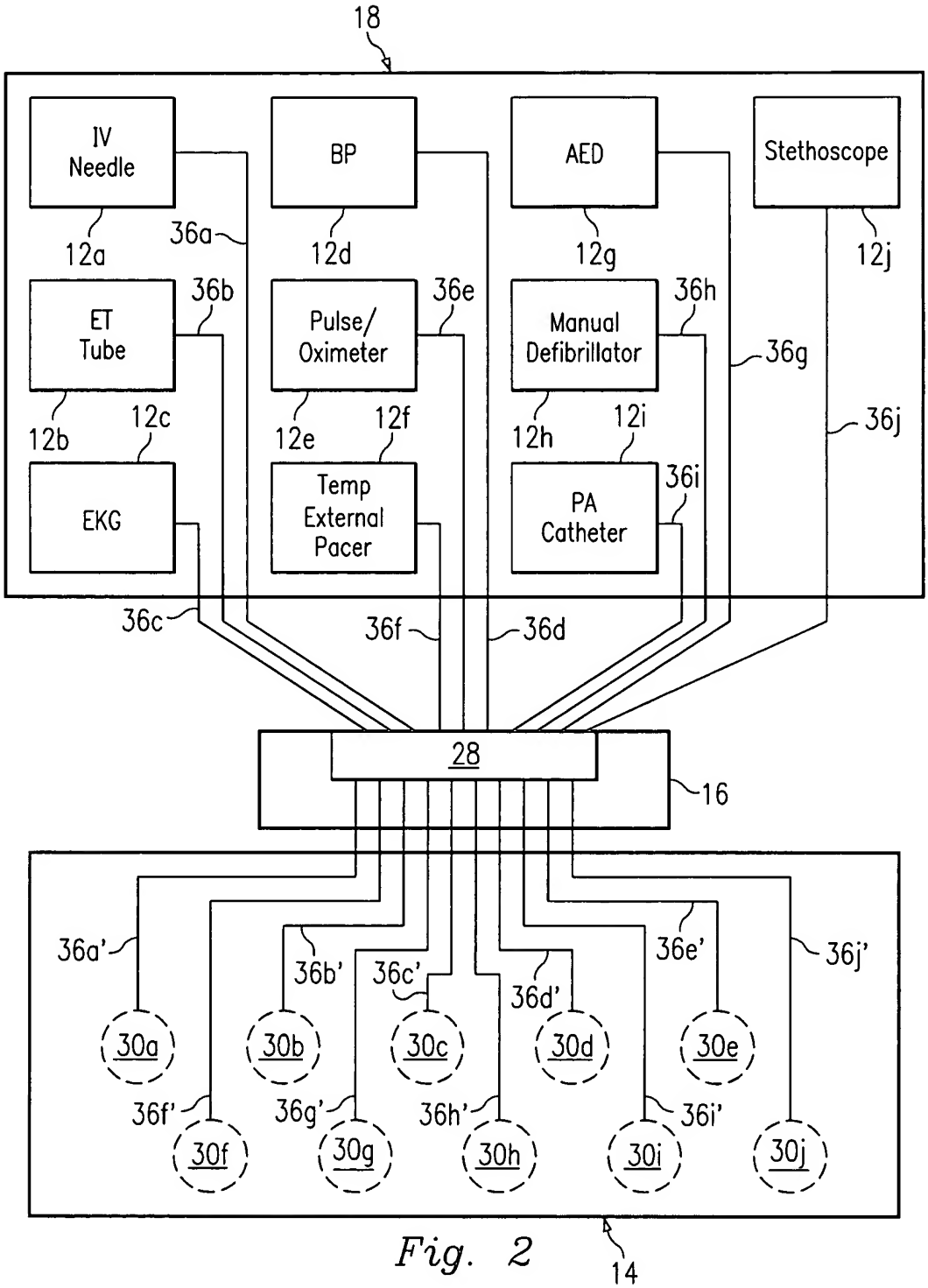

18
IV Needle
BP
AED
Stethoscope
12a
36a
12d
12g
12j
ET Tube
36b
Pulse/ Oximeter
36e
Manual Defibrillator
36h
36g
12b
12c
12e
12f
12h
12i
36j
EKG
Temp External Pacer
PA Catheter
36i
36c
36f
36d
28
16
36a'
36b'
36c'
36d'
36e'
36j'
30a
30b
30c
30d
30e
36f'
36g'
36h'
36i'
30f
30g
30h
30i
30j
14

Fig. 2

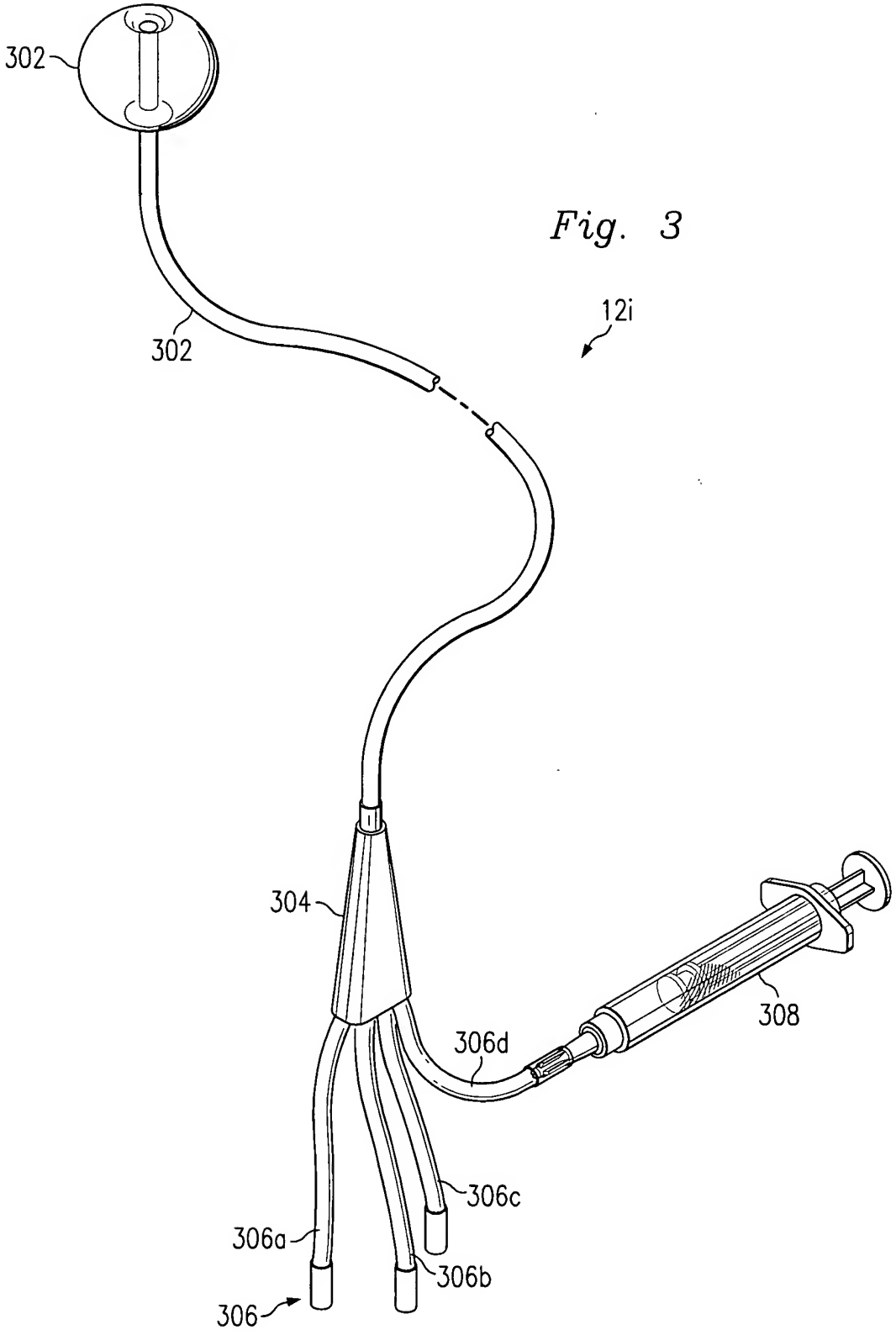


Fig. 3

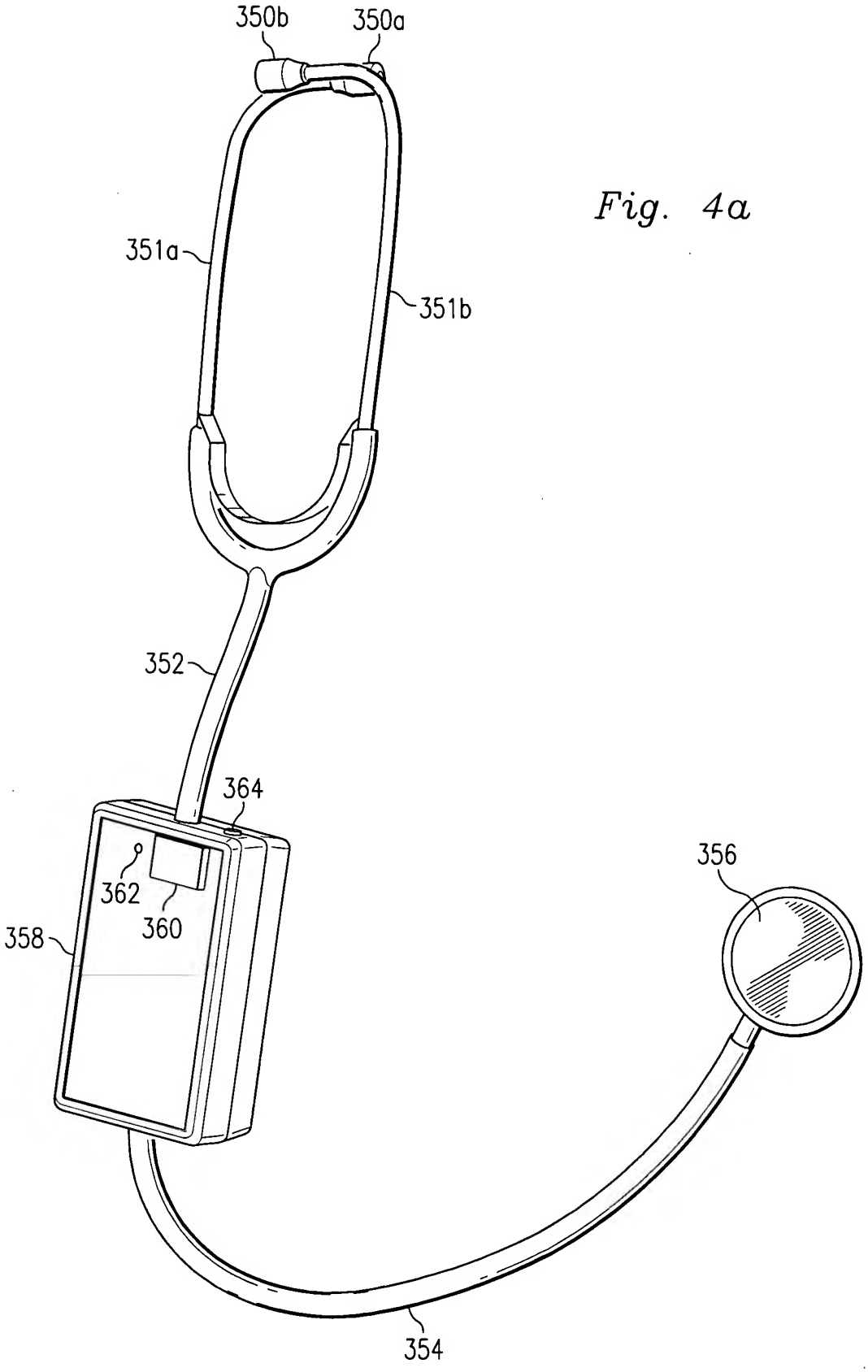


Fig. 4a

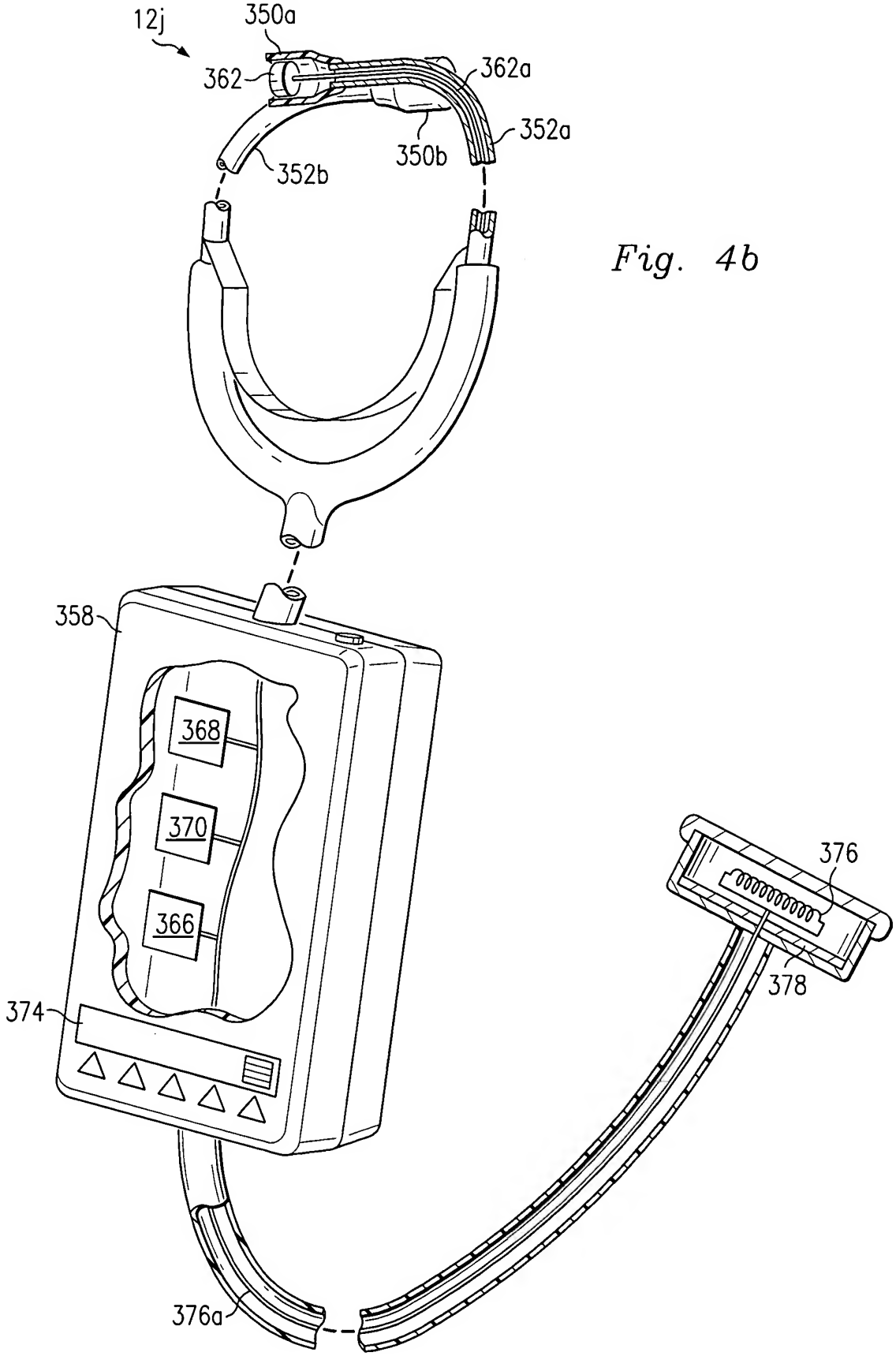

12j
350a
362
362a
352a
350b
352b
358
368
370
366
374
376
378
376a

Fig. 4b

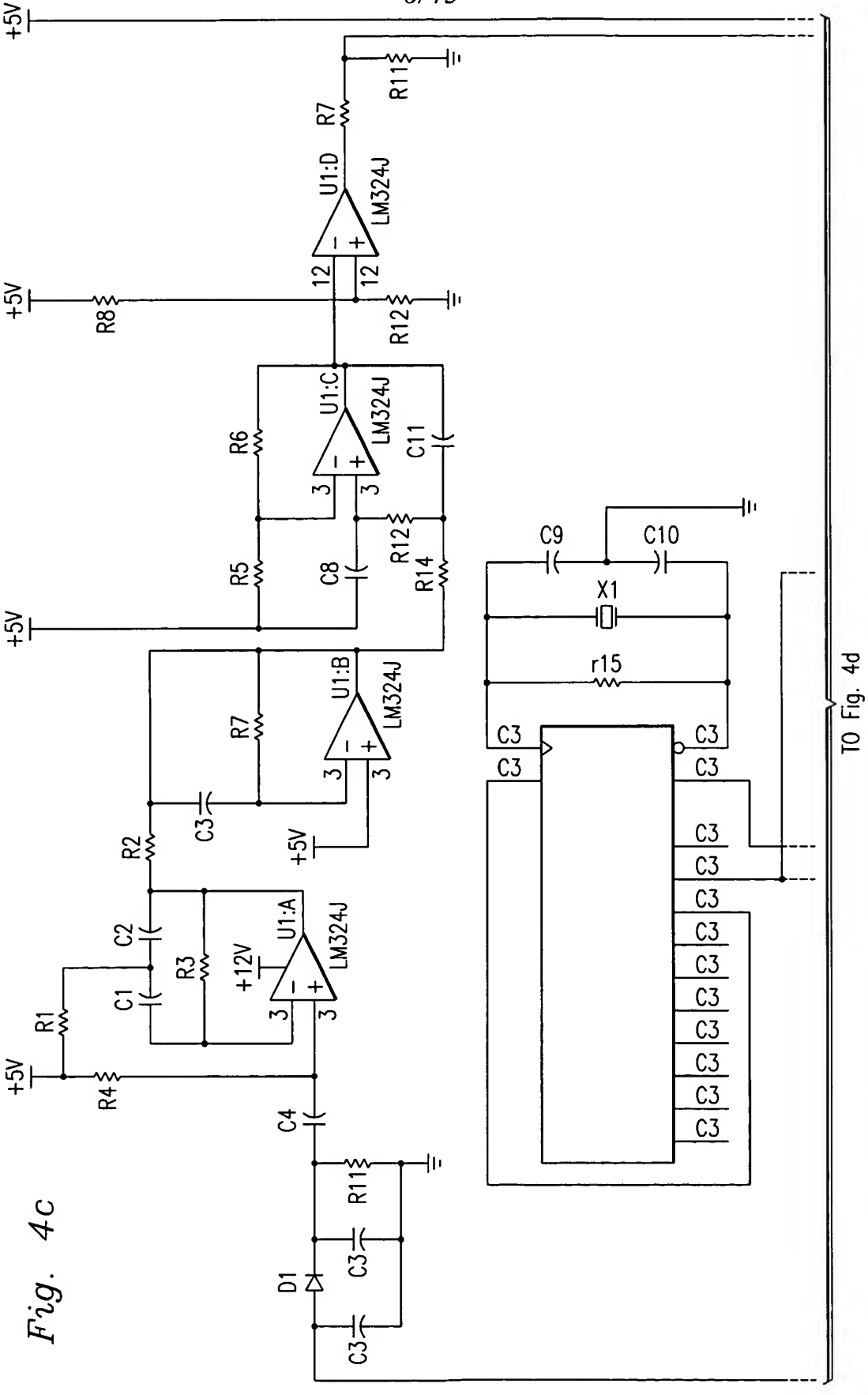

+5V
R11
R7
U1:D
LM324J
12
12
R8
R12
U1:C
LM324J
R6
C11
3
3
R12
R5
C8
R14
U1:B
LM324J
R7
3
3
C3
R2
+5V
C2
U1:A
LM324J
R3
+12V
C1
3
3
R1
R4
C4
R11
D1
C3
C3
C9
C10
X1
r15
C3
C3
C3
C3
C3
C3
C3
C3
C3
C3
C3
C3
C3
TO Fig. 4d

Fig. 4c

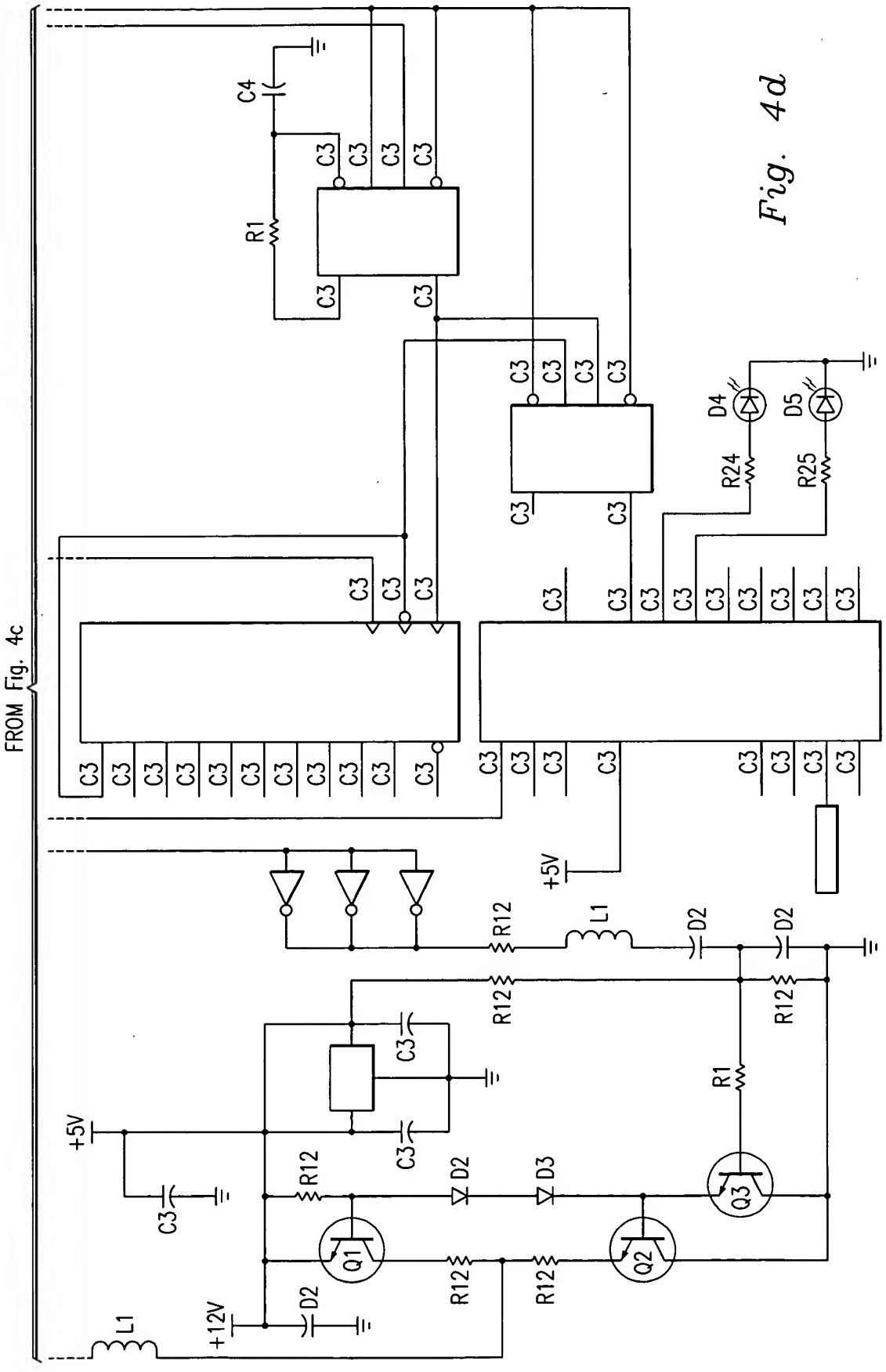
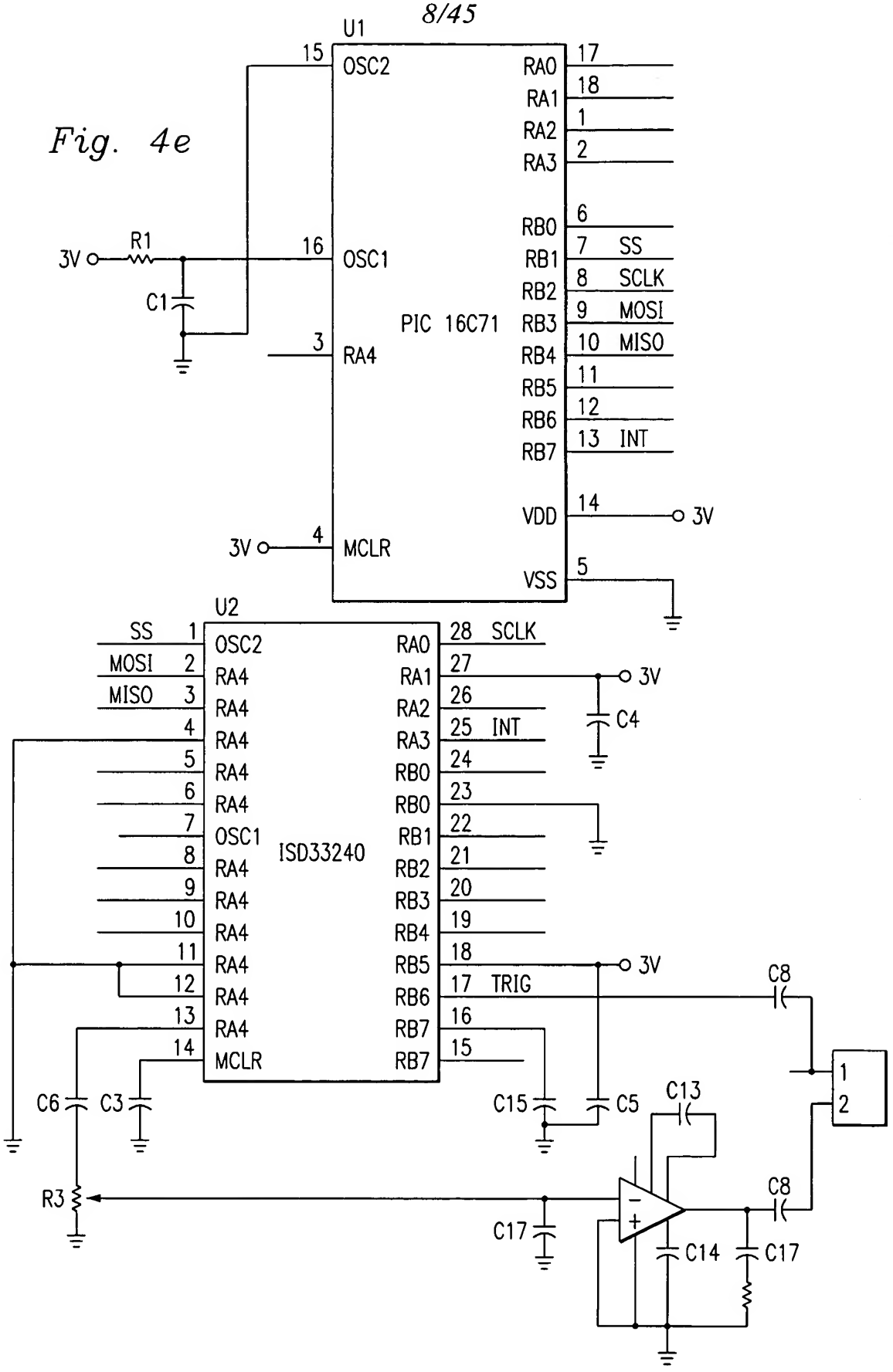


Fig. 4d

Fig. 4e


U1
PIC 16C71
OSC2
OSC1
RA4
MCLR
RA0
RA1
RA2
RA3
RB0
RB1
RB2
RB3
RB4
RB5
RB6
RB7
VDD
VSS
SS
SCLK
MOSI
MISO
INT
TRIG
3V
R1
C1
U2
ISD33240
C4
C5
C6
C3
C15
C8
C13
C14
C17
R3

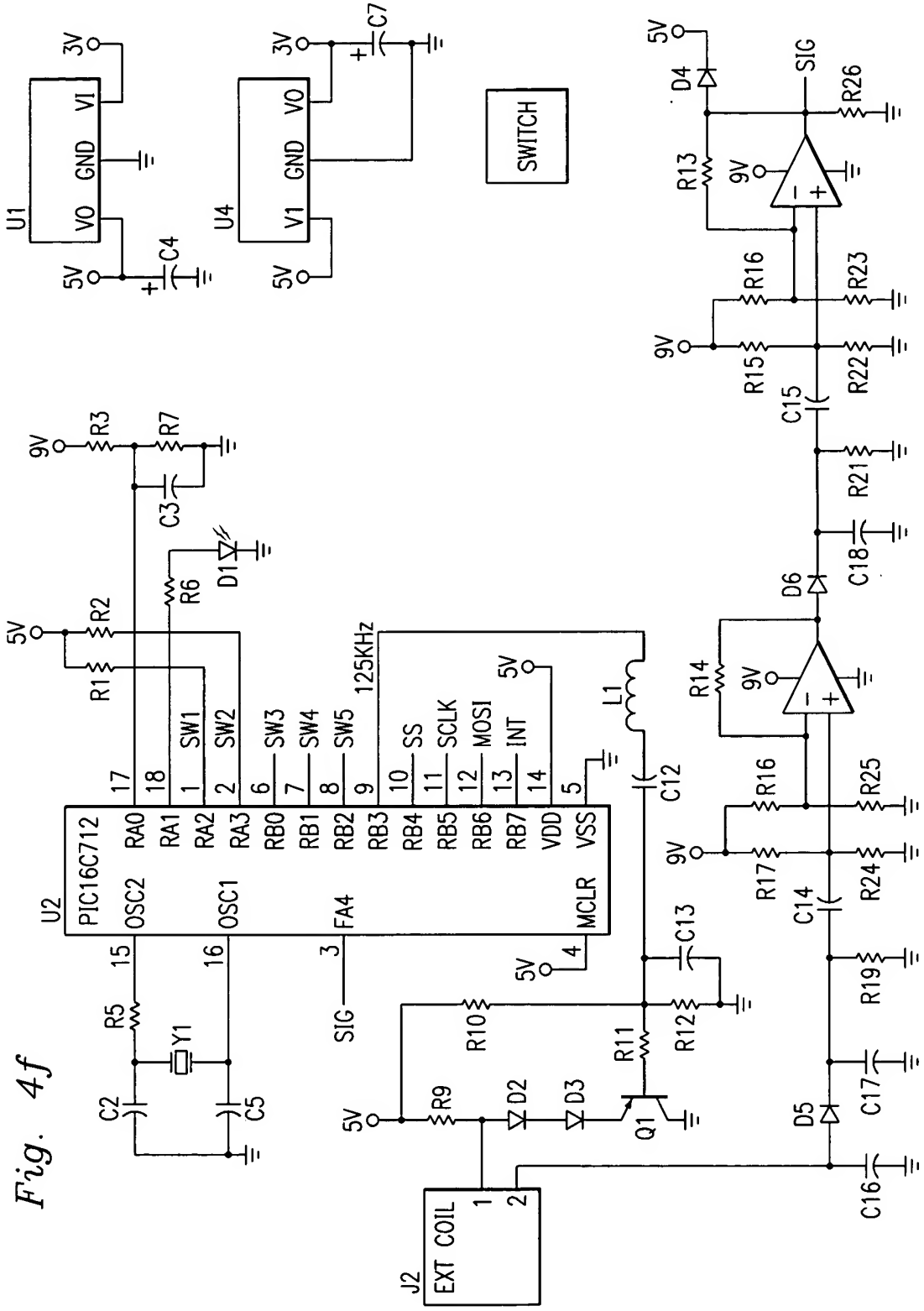

U1
3V
VI
GND
VO
5V
C4
U4
3V
VO
GND
V1
5V
C7
SWITCH
5V
D4
SIG
R26
R13
9V
R16
R23
9V
R15
R22
C15
R21
C18
D6
R14
9V
R16
R25
9V
R17
R24
C14
R19
C17
D5
C16
9V
R3
R7
C3
D1
R6
5V
R2
R1
U2
PIC16C712
RA0
RA1
RA2
RA3
RB0
RB1
RB2
RB3
RB4
RB5
RB6
RB7
VDD
VSS
MCLR
OSC2
OSC1
FA4
SW1
SW2
SW3
SW4
SW5
SS
SCLK
MOSI
INT
125KHz
5V
L1
C12
C13
5V
R5
Y1
C2
C5
SIG
R10
R11
R12
5V
R9
D2
D3
Q1
J2
EXT COIL
1
2

Fig. 4f

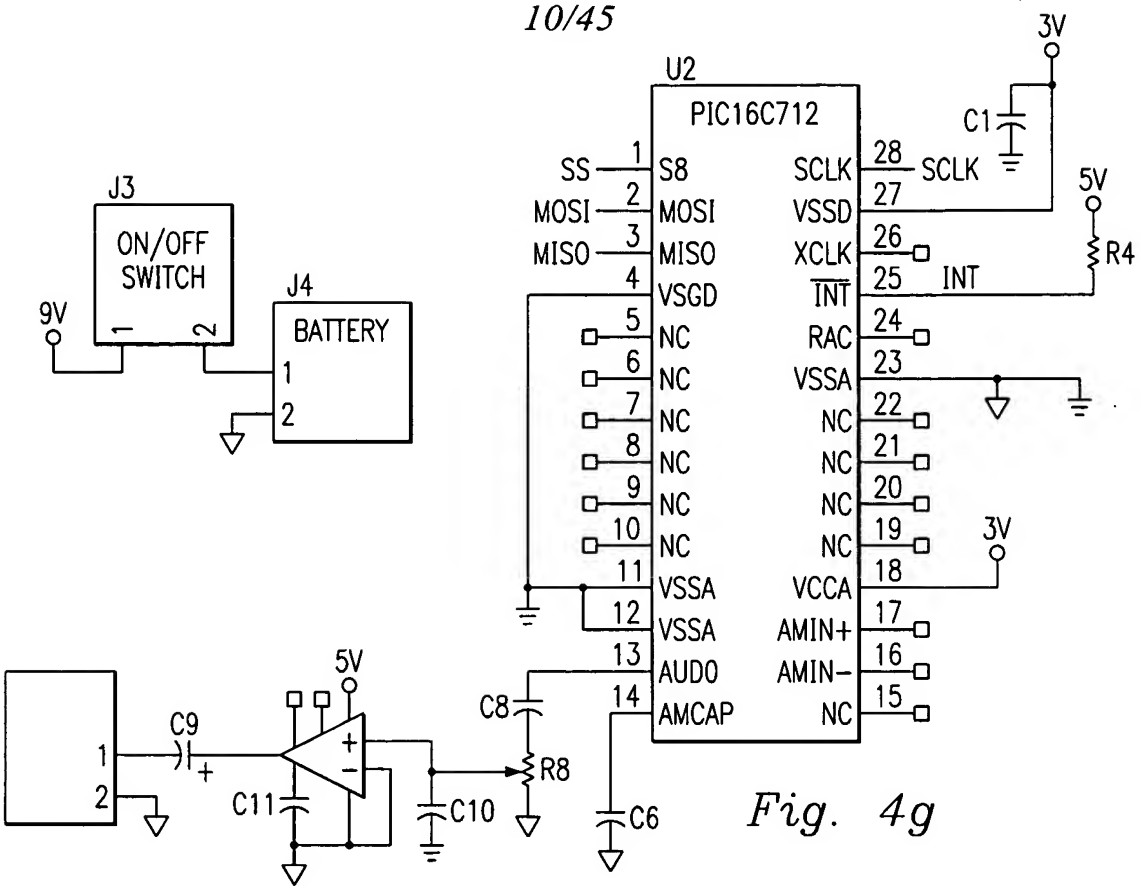

U2
PIC16C712
3V
C1
SS 1 S8
MOSI 2 MOSI
MISO 3 MISO
4 VSGD
5 NC
6 NC
7 NC
8 NC
9 NC
10 NC
11 VSSA
12 VSSA
13 AUDO
14 AMCAP
SCLK 28 SCLK
VSSD 27
XCLK 26
INT 25 INT
RAC 24
VSSA 23
NC 22
NC 21
NC 20
NC 19
VCCA 18
AMIN+ 17
AMIN- 16
NC 15
5V
R4
3V
J3
ON/OFF
SWITCH
9V
J4
BATTERY
1
2
5V
C9
C11
C8
R8
C10
C6

Fig. 4g

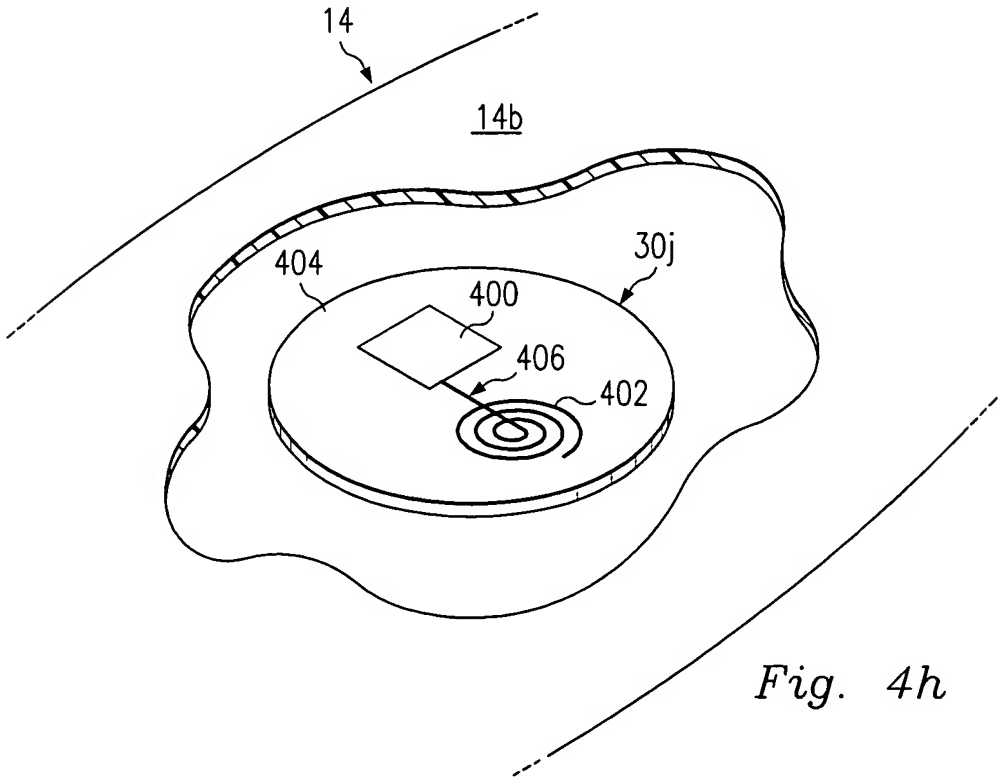

14
14b
404
30j
400
406
402

Fig. 4h

Fig. 5

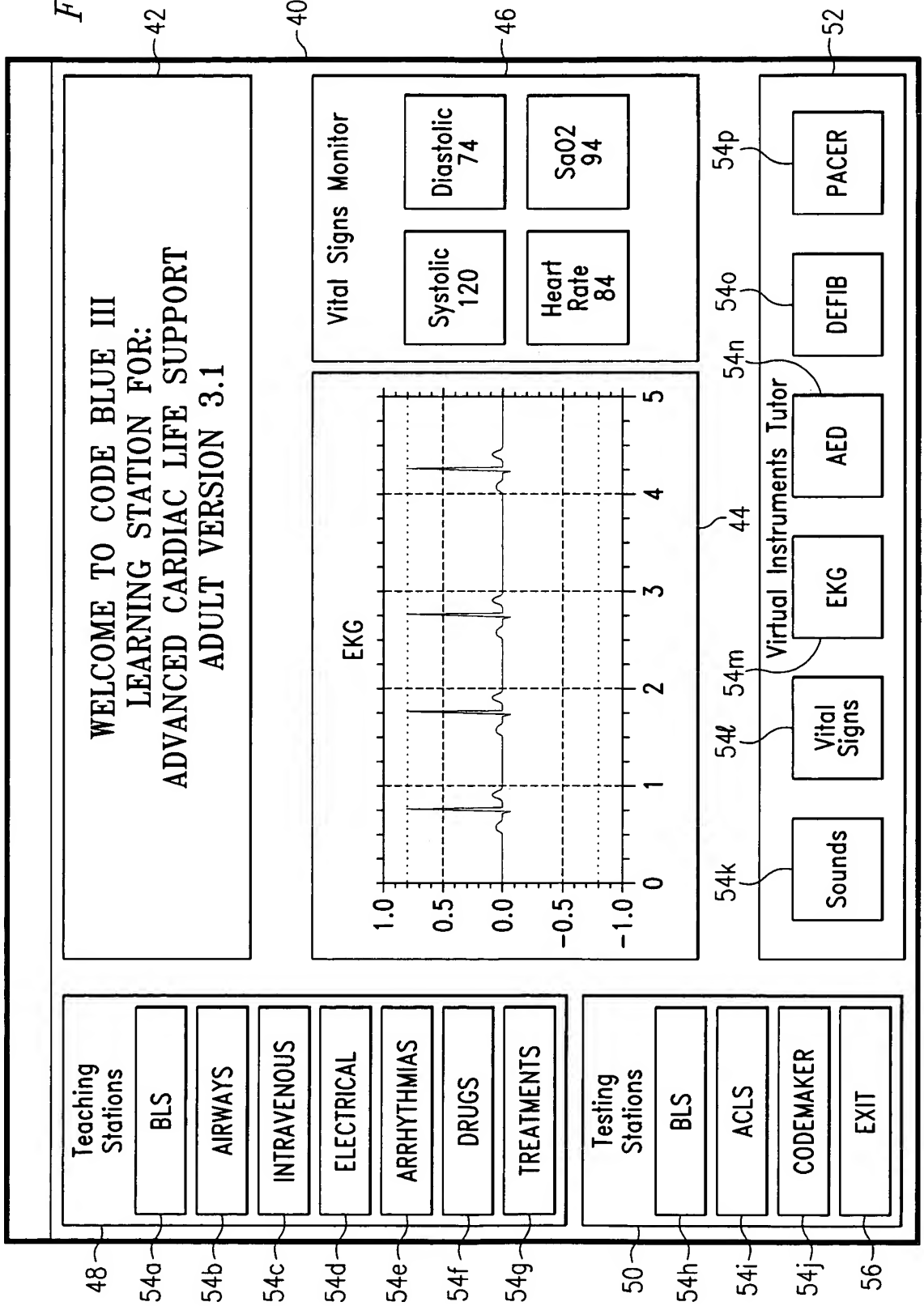

WELCOME TO CODE BLUE III
LEARNING STATION FOR:
ADVANCED CARDIAC LIFE SUPPORT
ADULT VERSION 3.1
42
40
46
52
Vital Signs Monitor
Systolic 120
Diastolic 74
Heart Rate 84
SaO2 94
EKG
1.0
0.5
0.0
-0.5
-1.0
0
1
2
3
4
5
44
Virtual Instruments Tutor
54k
Sounds
54l
Vital Signs
54m
EKG
54n
AED
54o
DEFIB
54p
PACER
Teaching Stations
48
54a
BLS
54b
AIRWAYS
54c
INTRAVENOUS
54d
ELECTRICAL
54e
ARRHYTHMIAS
54f
DRUGS
54g
TREATMENTS
Testing Stations
50
54h
BLS
54i
ACLS
54j
CODEMAKER
56
EXIT

Fig. 6

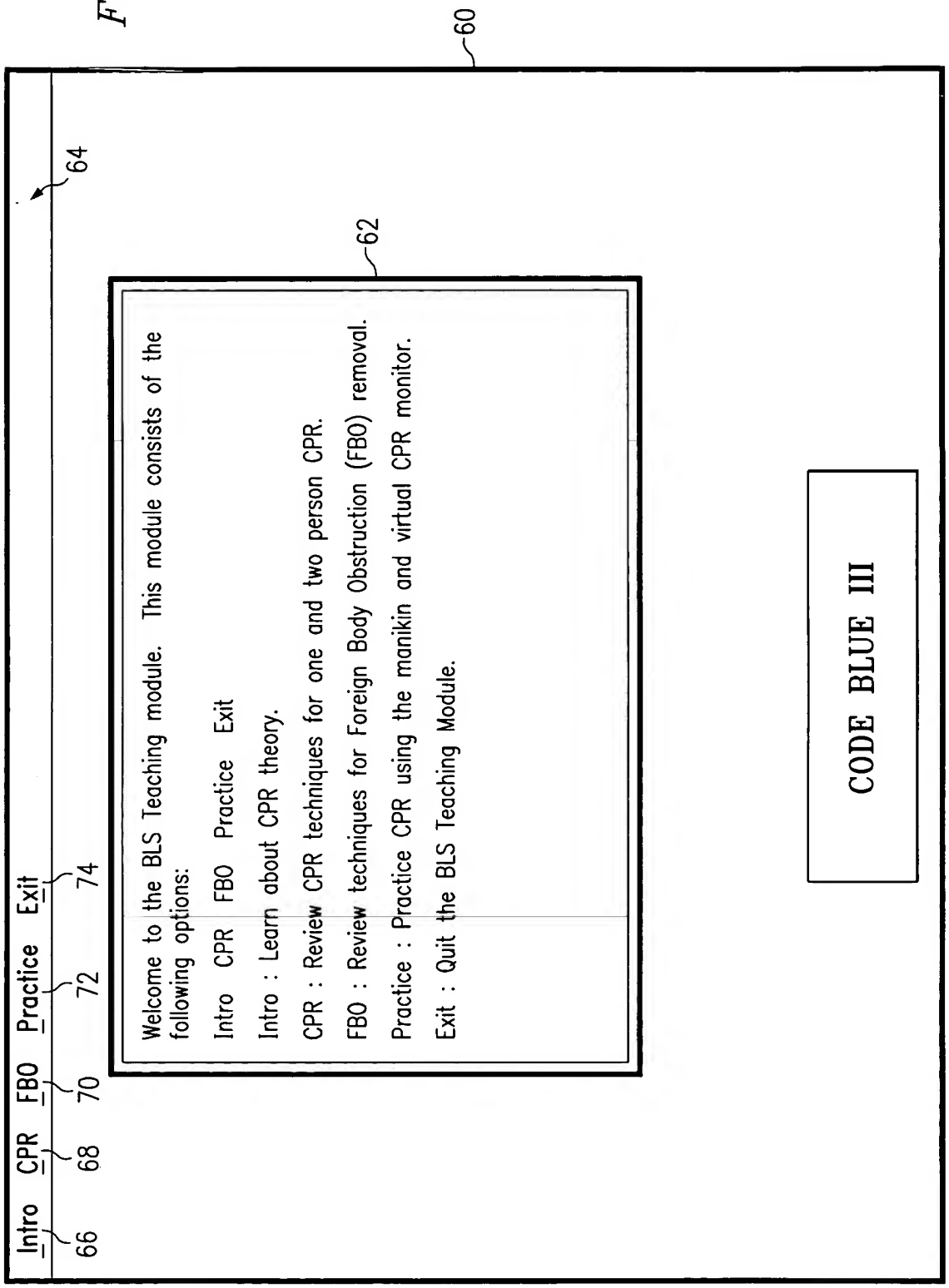
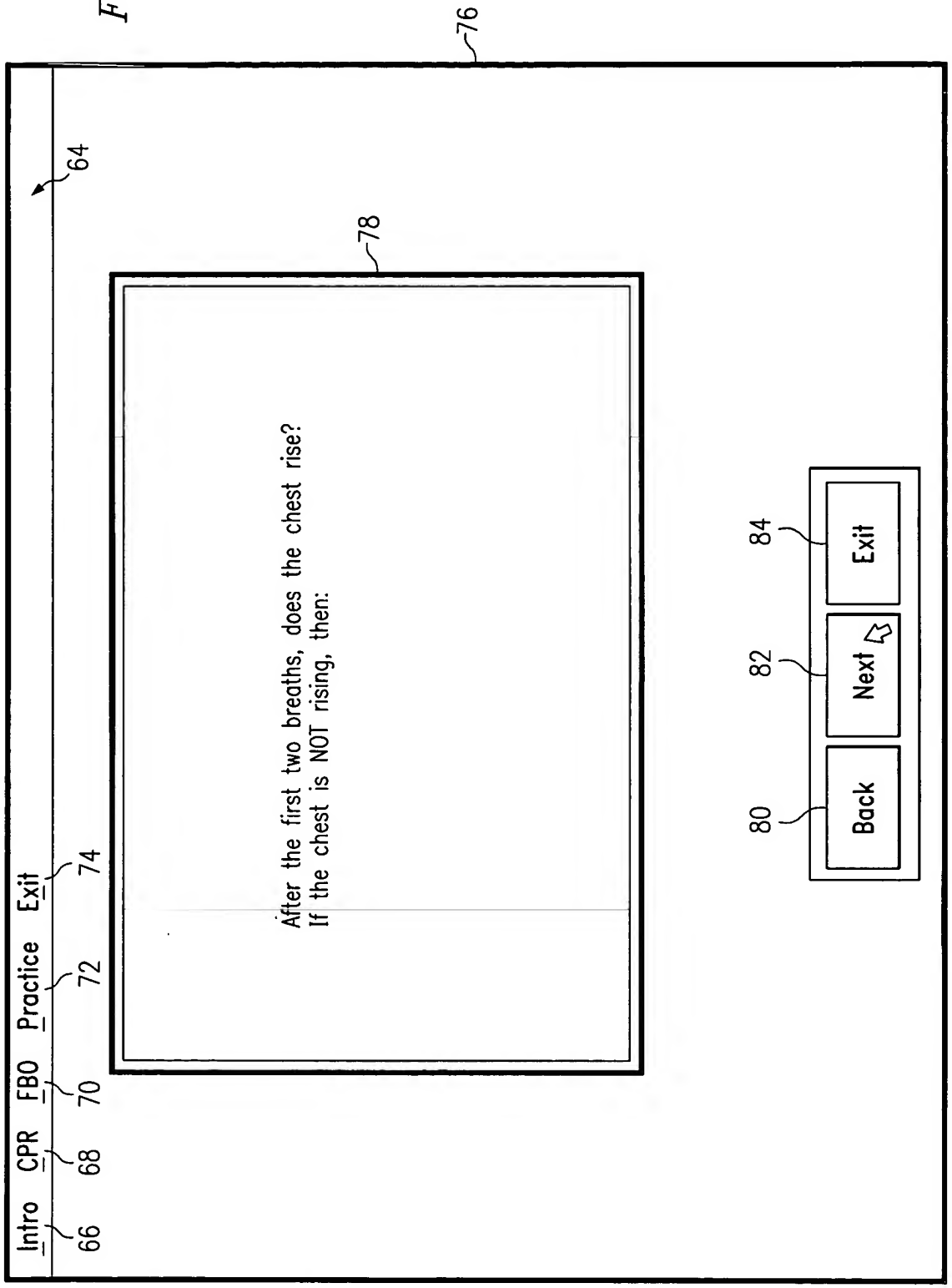

60
64
62
Intro CPR FBO Practice Exit
66 68 70 72 74
Welcome to the BLS Teaching module. This module consists of the following options:
Intro CPR FBO Practice Exit
Intro : Learn about CPR theory.
CPR : Review CPR techniques for one and two person CPR.
FBO : Review techniques for Foreign Body Obstruction (FBO) removal.
Practice : Practice CPR using the manikin and virtual CPR monitor.
Exit : Quit the BLS Teaching Module.
CODE BLUE III

Fig. 7


76
64
78
Intro
CPR
FBO
Practice
Exit
66
68
70
72
74
After the first two breaths, does the chest rise?
If the chest is NOT rising, then:
80
Back
82
Next
84
Exit

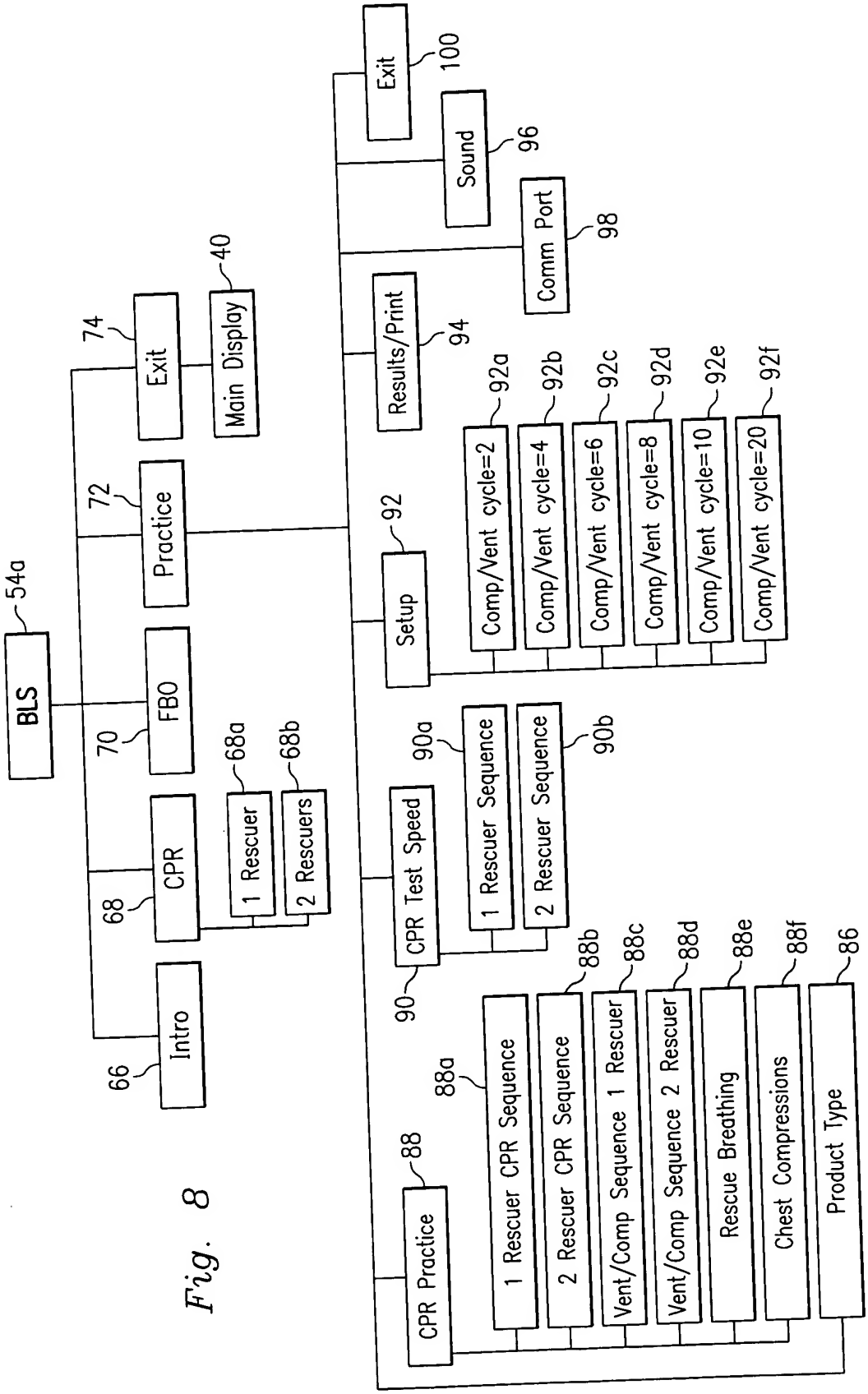

BLS
54a
Intro
66
CPR
68
FBO
70
Practice
72
Exit
74
Main Display
40
1 Rescuer
68a
2 Rescuers
68b
CPR Test Speed
90
1 Rescuer Sequence
90a
2 Rescuer Sequence
90b
Setup
92
Comp/Vent cycle=2
92a
Comp/Vent cycle=4
92b
Comp/Vent cycle=6
92c
Comp/Vent cycle=8
92d
Comp/Vent cycle=10
92e
Comp/Vent cycle=20
92f
Results/Print
94
Sound
96
Comm Port
98
Exit
100
CPR Practice
88
1 Rescuer CPR Sequence
88a
2 Rescuer CPR Sequence
88b
Vent/Comp Sequence 1 Rescuer
88c
Vent/Comp Sequence 2 Rescuer
88d
Rescue Breathing
88e
Chest Compressions
88f
Product Type
86

Fig. 8

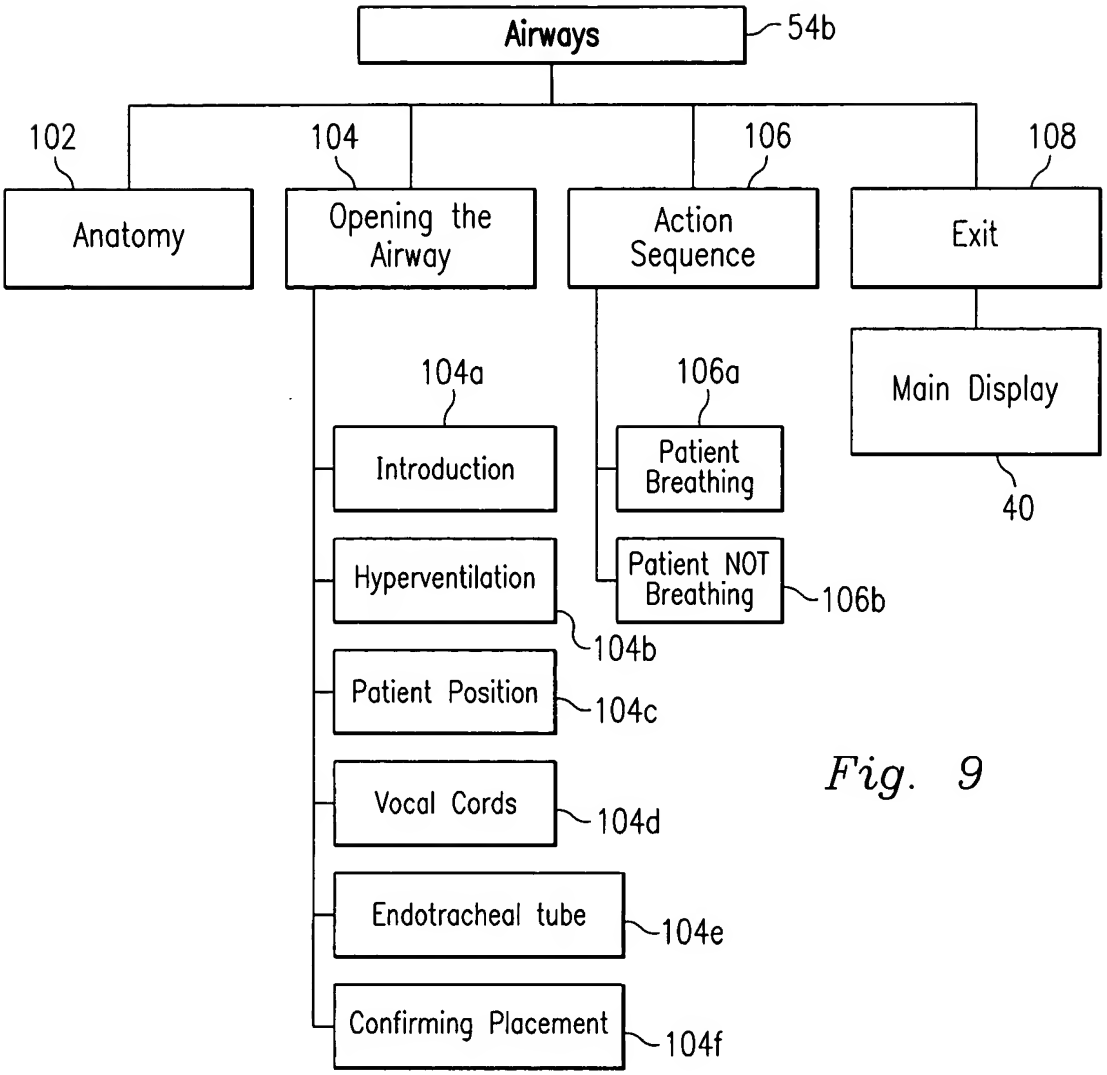
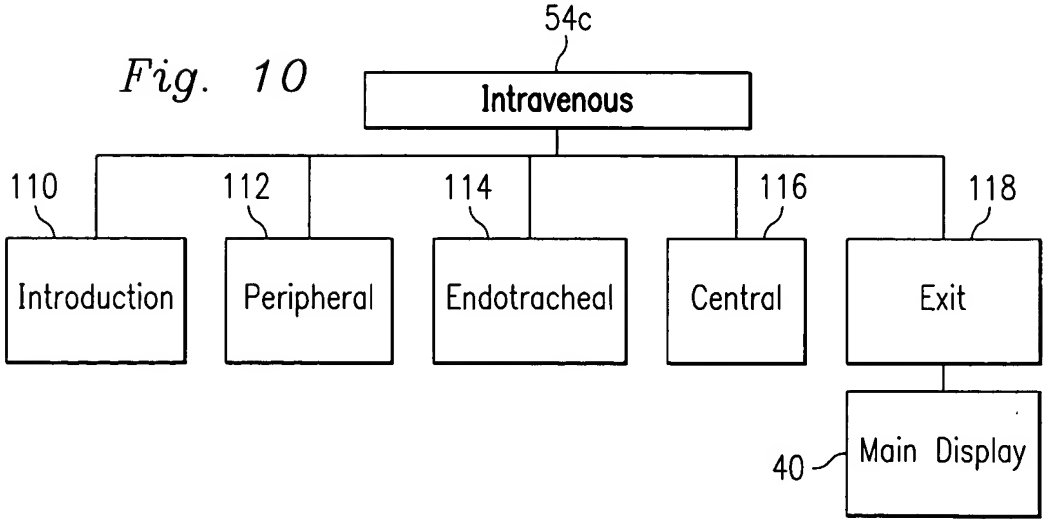

Airways
54b
102
104
106
108
Anatomy
Opening the Airway
Action Sequence
Exit
Main Display
40
104a
106a
Introduction
Patient Breathing
Hyperventilation
Patient NOT Breathing
106b
104b
Patient Position
104c
Vocal Cords
104d
Endotracheal tube
104e
Confirming Placement
104f

Fig. 9

Fig. 10


54c
Intravenous
110
112
114
116
118
Introduction
Peripheral
Endotracheal
Central
Exit
40
Main Display

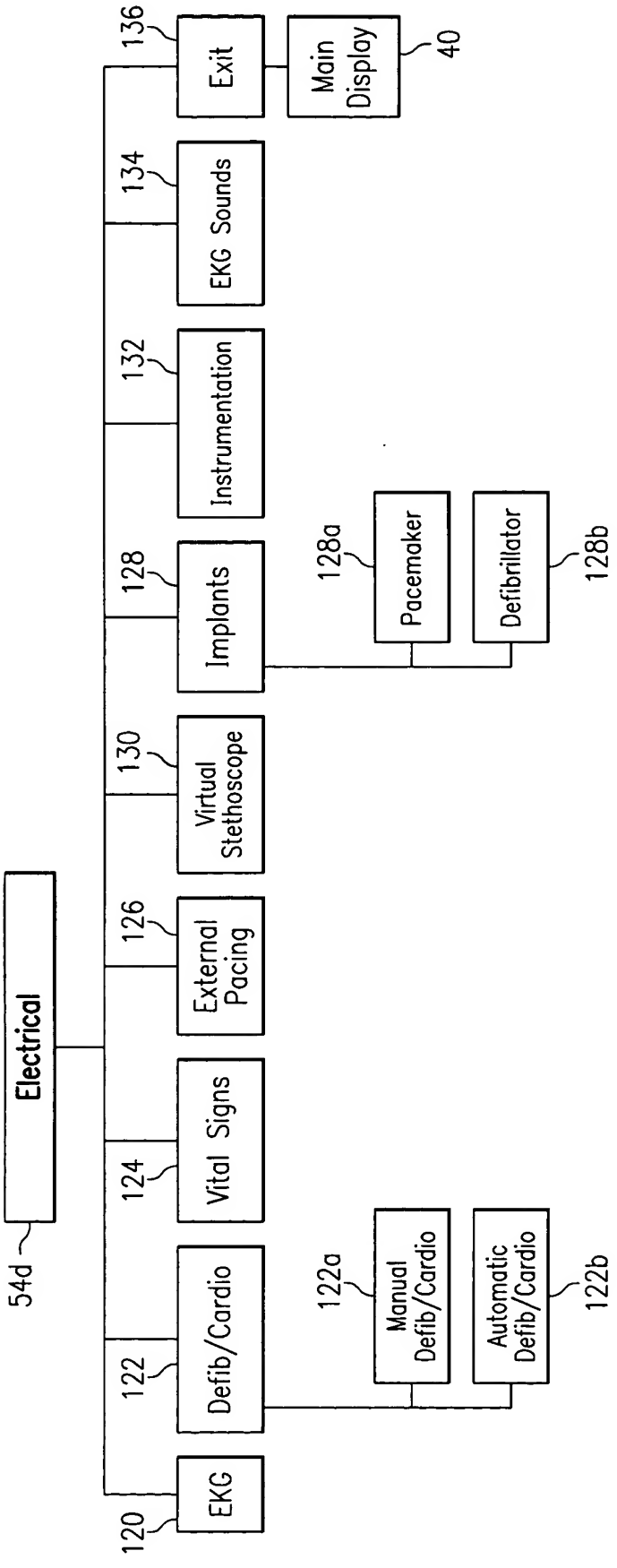

Electrical
54d
EKG
120
Defib/Cardio
122
Manual Defib/Cardio
122a
Automatic Defib/Cardio
122b
Vital Signs
124
External Pacing
126
Virtual Stethoscope
130
Implants
128
Pacemaker
128a
Defibrillator
128b
Instrumentation
132
EKG Sounds
134
Exit
136
Main Display
40

Fig. 11

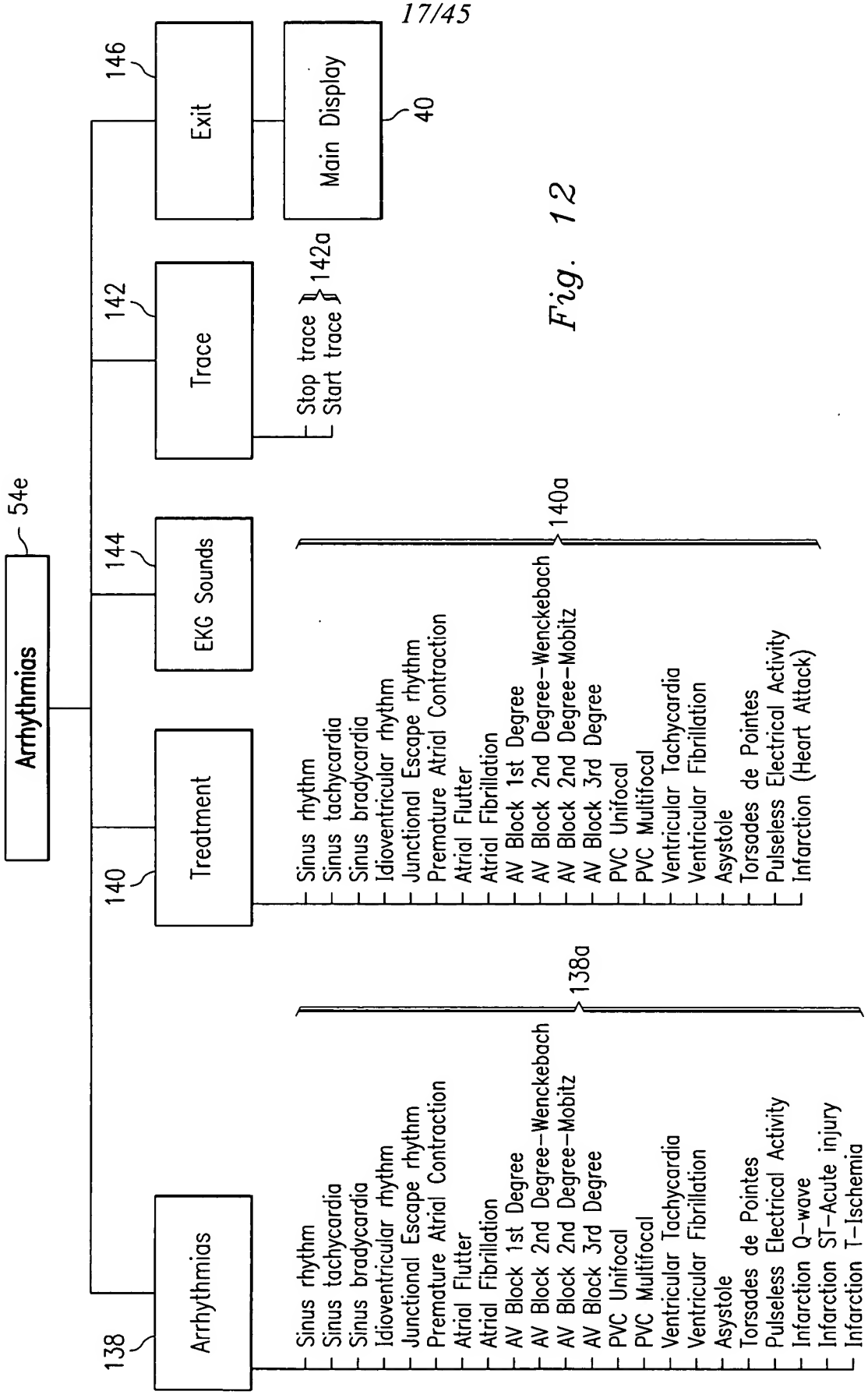

Arrhythmias
54e
138
Arrhythmias
Sinus rhythm
Sinus tachycardia
Sinus bradycardia
Idioventricular rhythm
Junctional Escape rhythm
Premature Atrial Contraction
Atrial Flutter
Atrial Fibrillation
AV Block 1st Degree
AV Block 2nd Degree–Wenckebach
AV Block 2nd Degree–Mobitz
AV Block 3rd Degree
PVC Unifocal
PVC Multifocal
Ventricular Tachycardia
Ventricular Fibrillation
Asystole
Torsades de Pointes
Pulseless Electrical Activity
Infarction Q–wave
Infarction ST–Acute injury
Infarction T–Ischemia
138a
140
Treatment
Sinus rhythm
Sinus tachycardia
Sinus bradycardia
Idioventricular rhythm
Junctional Escape rhythm
Premature Atrial Contraction
Atrial Flutter
Atrial Fibrillation
AV Block 1st Degree
AV Block 2nd Degree–Wenckebach
AV Block 2nd Degree–Mobitz
AV Block 3rd Degree
PVC Unifocal
PVC Multifocal
Ventricular Tachycardia
Ventricular Fibrillation
Asystole
Torsades de Pointes
Pulseless Electrical Activity
Infarction (Heart Attack)
140a
144
EKG Sounds
142
Trace
Stop trace
Start trace
142a
146
Exit
Main Display
40

Fig. 12

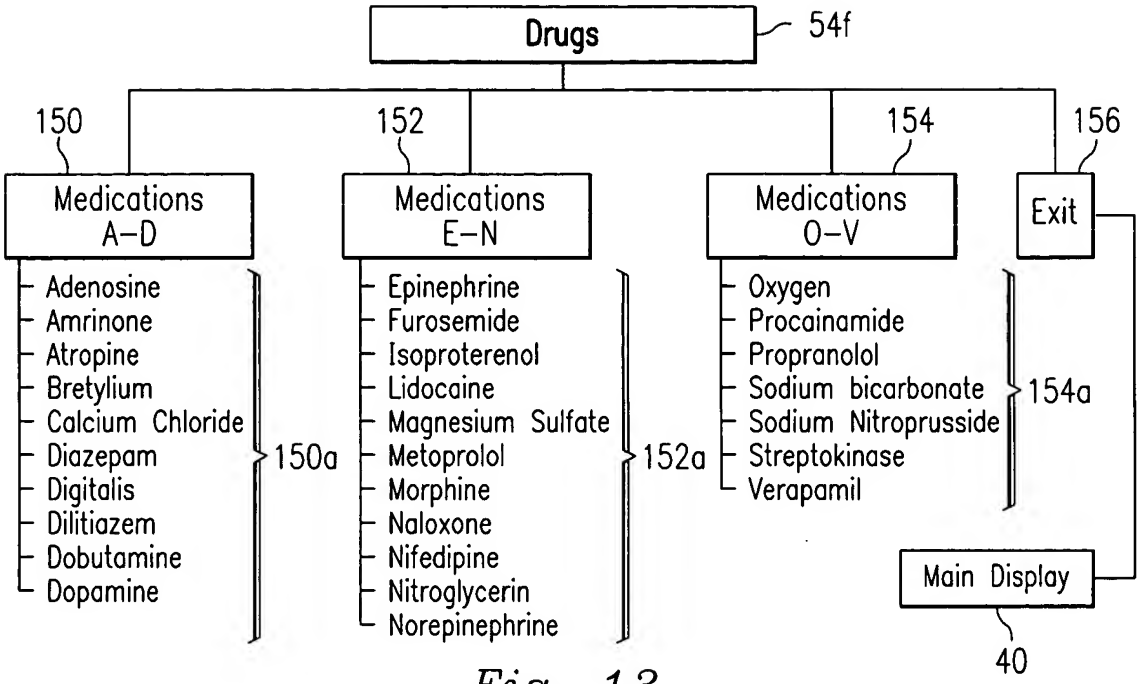

Drugs
54f
150
152
154
156
Medications A–D
Medications E–N
Medications O–V
Exit
Adenosine
Amrinone
Atropine
Bretylium
Calcium Chloride
Diazepam
Digitalis
Dilitiazem
Dobutamine
Dopamine
150a
Epinephrine
Furosemide
Isoproterenol
Lidocaine
Magnesium Sulfate
Metoprolol
Morphine
Naloxone
Nifedipine
Nitroglycerin
Norepinephrine
152a
Oxygen
Procainamide
Propranolol
Sodium bicarbonate
Sodium Nitroprusside
Streptokinase
Verapamil
154a
Main Display
40

Fig. 13

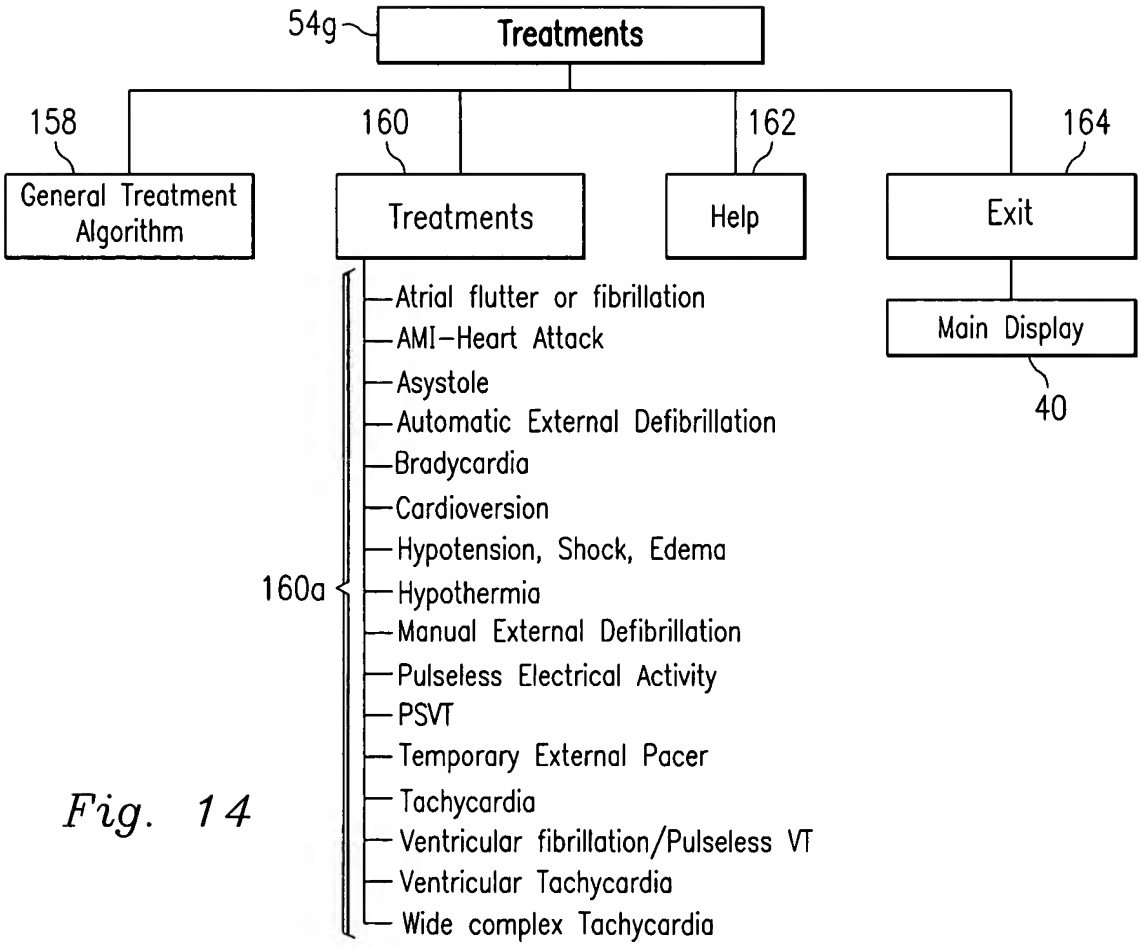

54g
Treatments
158
160
162
164
General Treatment Algorithm
Treatments
Help
Exit
Main Display
40
Atrial flutter or fibrillation
AMI–Heart Attack
Asystole
Automatic External Defibrillation
Bradycardia
Cardioversion
Hypotension, Shock, Edema
Hypothermia
Manual External Defibrillation
Pulseless Electrical Activity
PSVT
Temporary External Pacer
Tachycardia
Ventricular fibrillation/Pulseless VT
Ventricular Tachycardia
Wide complex Tachycardia
160a

Fig. 14

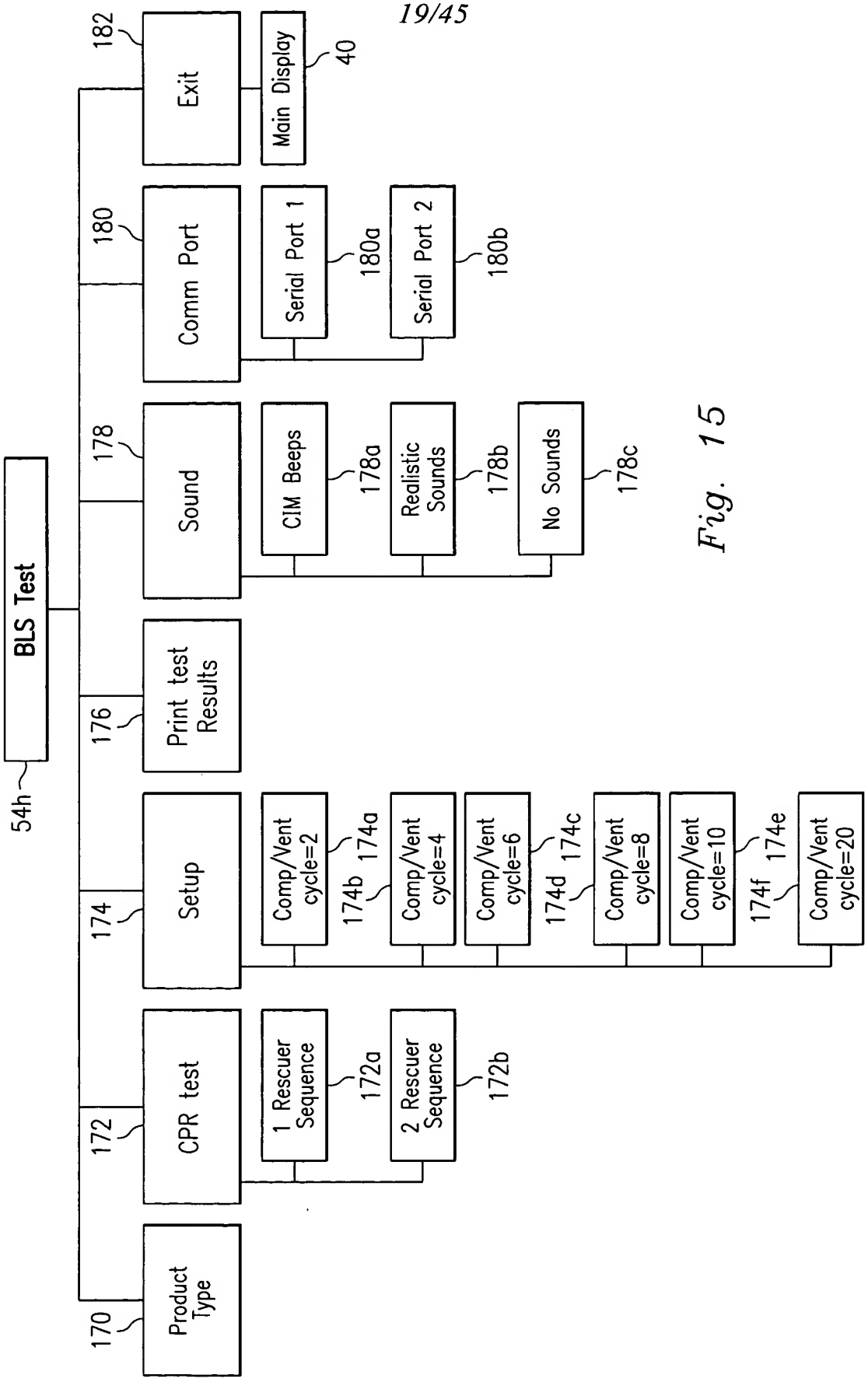

BLS Test
54h
Product Type
170
CPR test
172
1 Rescuer Sequence
172a
2 Rescuer Sequence
172b
Setup
174
Comp/Vent cycle=2
174a
Comp/Vent cycle=4
174b
Comp/Vent cycle=6
174c
Comp/Vent cycle=8
174d
Comp/Vent cycle=10
174e
Comp/Vent cycle=20
174f
Print test Results
176
Sound
178
CIM Beeps
178a
Realistic Sounds
178b
No Sounds
178c
Comm Port
180
Serial Port 1
180a
Serial Port 2
180b
Exit
182
Main Display
40

Fig. 15

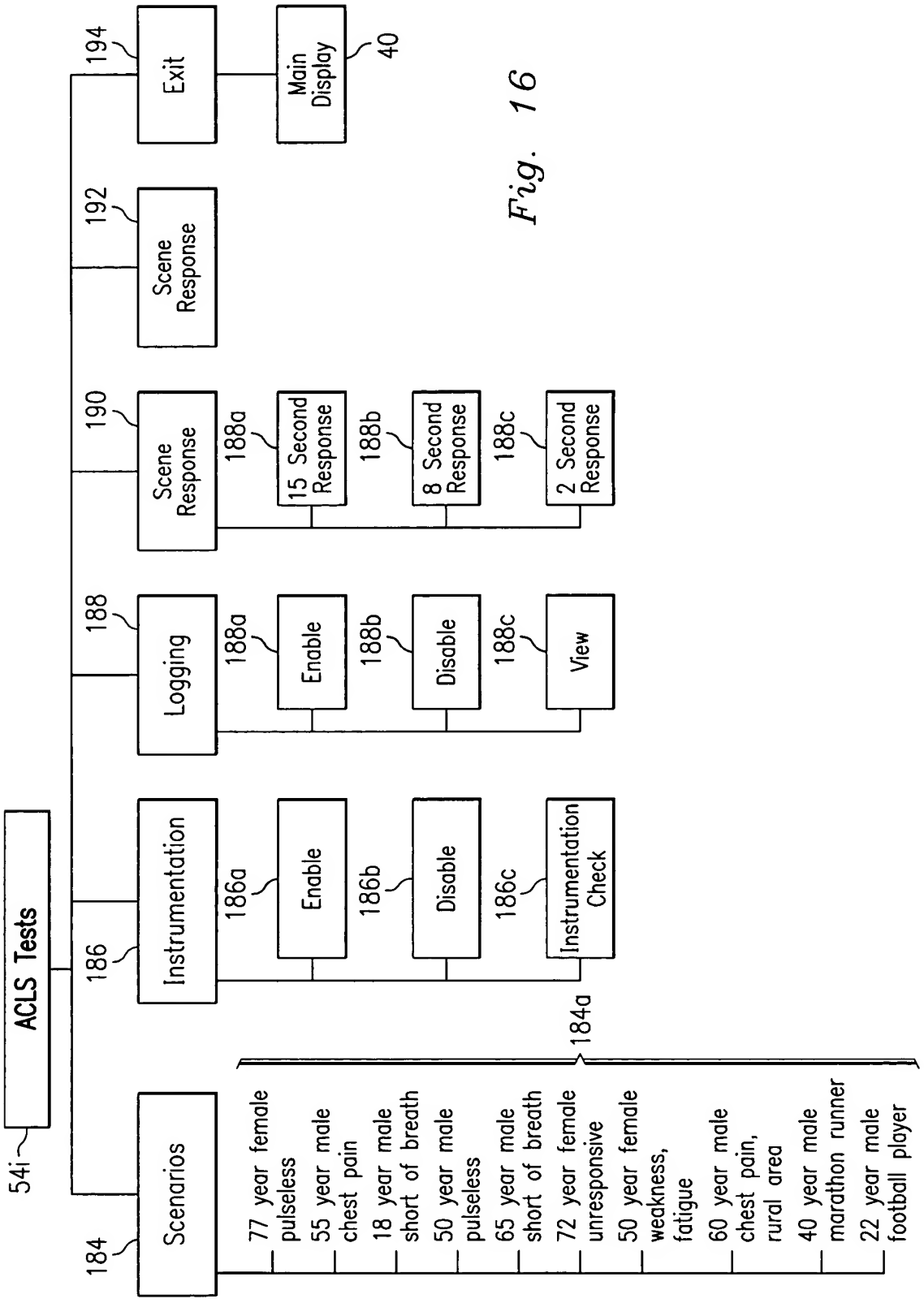

ACLS Tests
54i
Scenarios
184
184a
77 year female pulseless
55 year male chest pain
18 year male short of breath
50 year male pulseless
65 year male short of breath
72 year female unresponsive
50 year female weakness, fatigue
60 year male chest pain, rural area
40 year male marathon runner
22 year male football player
Instrumentation
186
186a
Enable
186b
Disable
186c
Instrumentation Check
Logging
188
188a
Enable
188b
Disable
188c
View
Scene Response
190
188a
15 Second Response
188b
8 Second Response
188c
2 Second Response
Scene Response
192
Exit
194
Main Display
40

Fig. 16

Fig. 17a

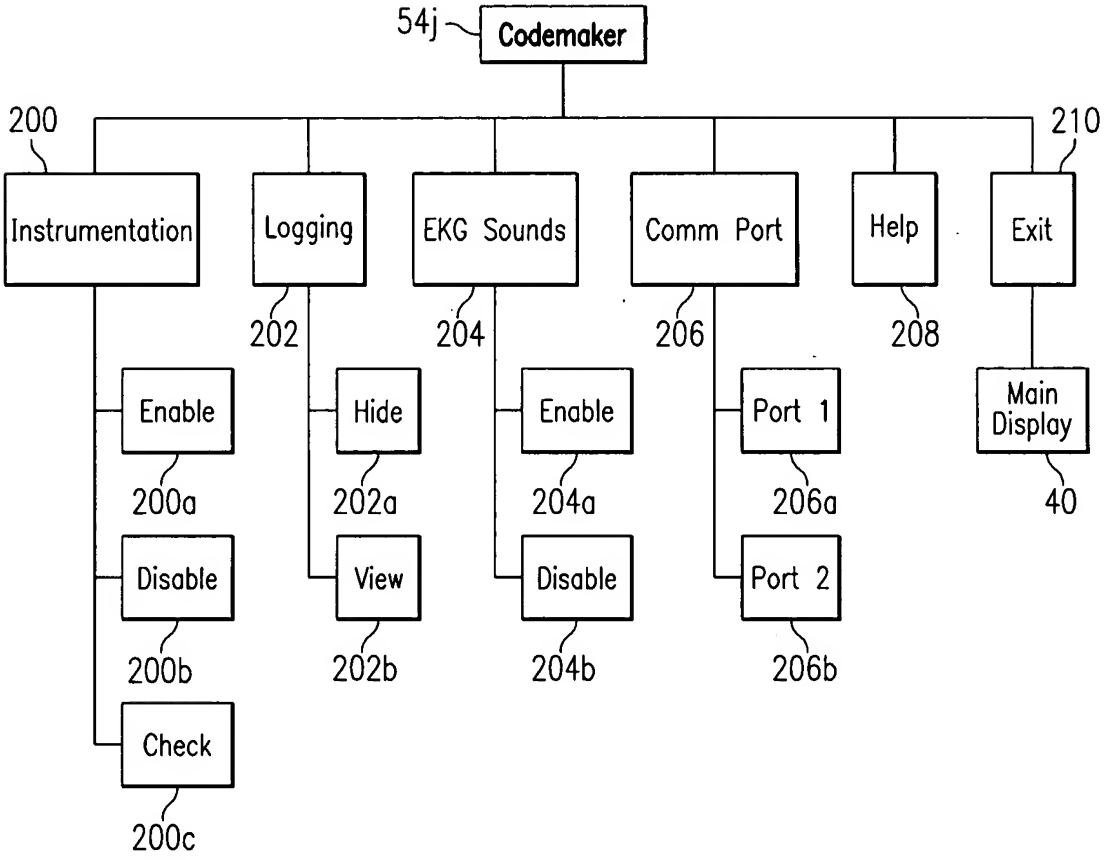
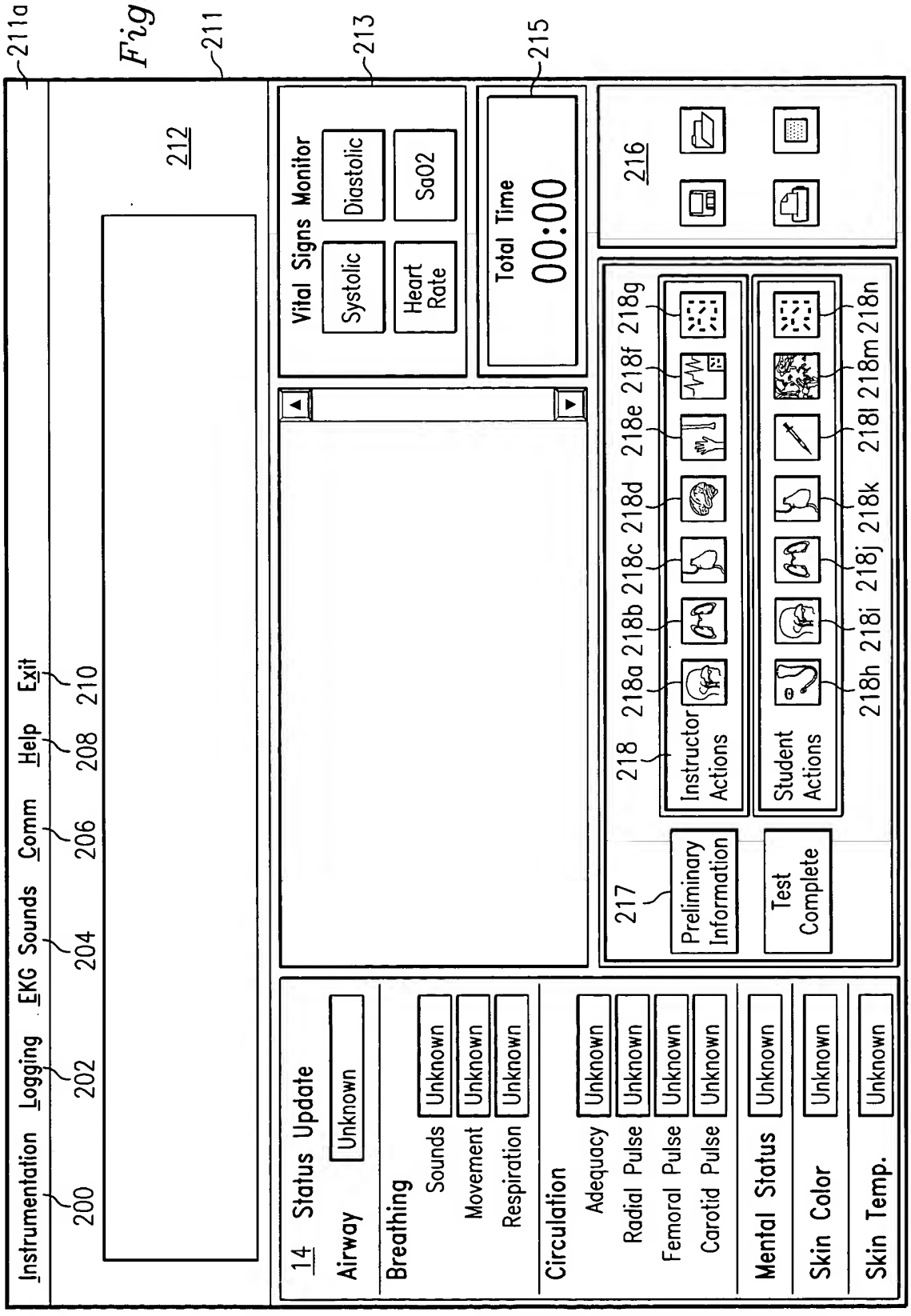

54j
Codemaker
200
210
Instrumentation
Logging
EKG Sounds
Comm Port
Help
Exit
202
204
206
208
Enable
Hide
Enable
Port 1
Main Display
200a
202a
204a
206a
40
Disable
View
Disable
Port 2
200b
202b
204b
206b
Check
200c

Fig. 17b


211a
211
213
215
212
216
Instrumentation
Logging
EKG Sounds
Comm
Help
Exit
200
202
204
206
208
210
Vital Signs Monitor
Systolic
Diastolic
Heart Rate
SaO2
Total Time
00:00
14 Status Update
Airway
Unknown
Breathing
Sounds
Movement
Respiration
Circulation
Adequacy
Radial Pulse
Femoral Pulse
Carotid Pulse
Mental Status
Skin Color
Skin Temp.
217
Preliminary Information
Test Complete
218
Instructor Actions
Student Actions
218a 218b 218c 218d 218e 218f 218g
218h 218i 218j 218k 218l 218m 218n

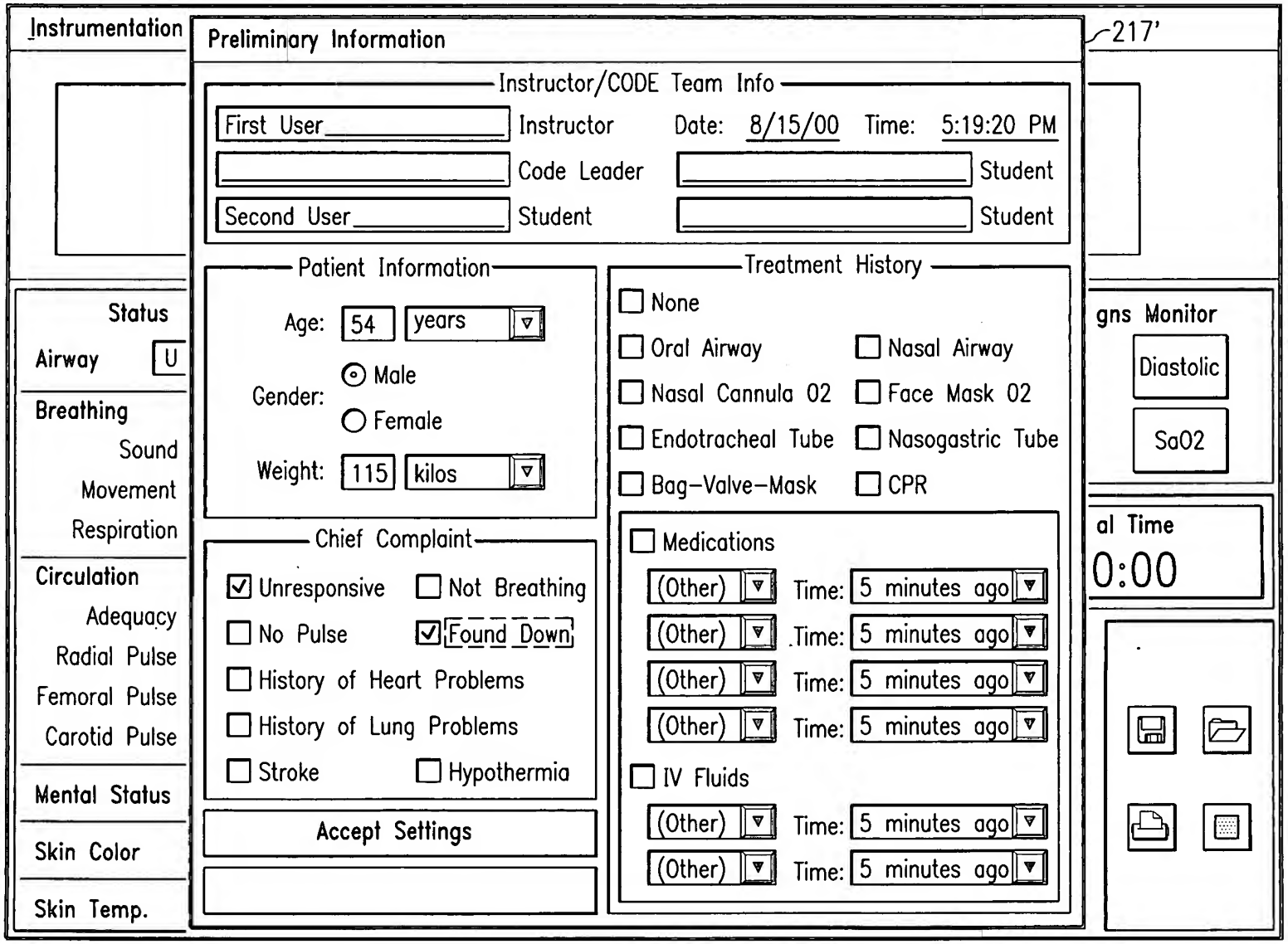

Instrumentation
Preliminary Information
217'
Instructor/CODE Team Info
First User
Instructor
Date: 8/15/00
Time: 5:19:20 PM
Code Leader
Student
Second User
Student
Student
Patient Information
Age: 54 years
Gender: Male Female
Weight: 115 kilos
Chief Complaint
Unresponsive
Not Breathing
No Pulse
Found Down
History of Heart Problems
History of Lung Problems
Stroke
Hypothermia
Accept Settings
Treatment History
None
Oral Airway
Nasal Airway
Nasal Cannula 02
Face Mask 02
Endotracheal Tube
Nasogastric Tube
Bag-Valve-Mask
CPR
Medications
(Other) Time: 5 minutes ago
IV Fluids
Status
Airway U
Breathing
Sound
Movement
Respiration
Circulation
Adequacy
Radial Pulse
Femoral Pulse
Carotid Pulse
Mental Status
Skin Color
Skin Temp.
gns Monitor
Diastolic
SaO2
al Time
0:00

Fig. 17c

211

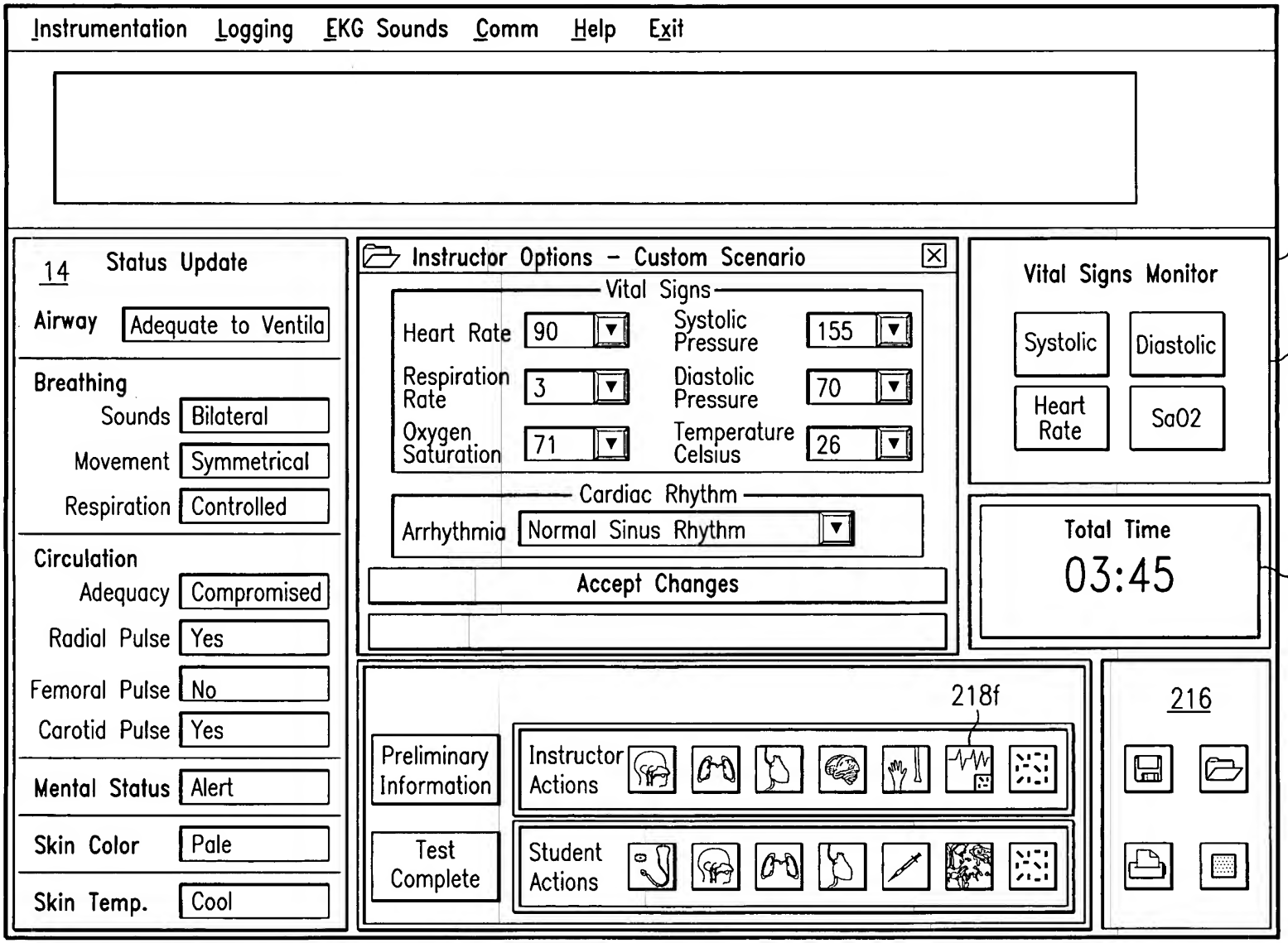

Instrumentation
Logging
EKG Sounds
Comm
Help
Exit
14
Status Update
Airway
Adequate to Ventila
Breathing
Sounds
Bilateral
Movement
Symmetrical
Respiration
Controlled
Circulation
Adequacy
Compromised
Radial Pulse
Yes
Femoral Pulse
No
Carotid Pulse
Yes
Mental Status
Alert
Skin Color
Pale
Skin Temp.
Cool
Instructor Options - Custom Scenario
Vital Signs
Heart Rate
90
Systolic Pressure
155
Respiration Rate
3
Diastolic Pressure
70
Oxygen Saturation
71
Temperature Celsius
26
Cardiac Rhythm
Arrhythmia
Normal Sinus Rhythm
Accept Changes
Vital Signs Monitor
Systolic
Diastolic
Heart Rate
SaO2
Total Time
03:45
211
213
215
216
218f
Preliminary Information
Test Complete
Instructor Actions
Student Actions

Fig. 17d

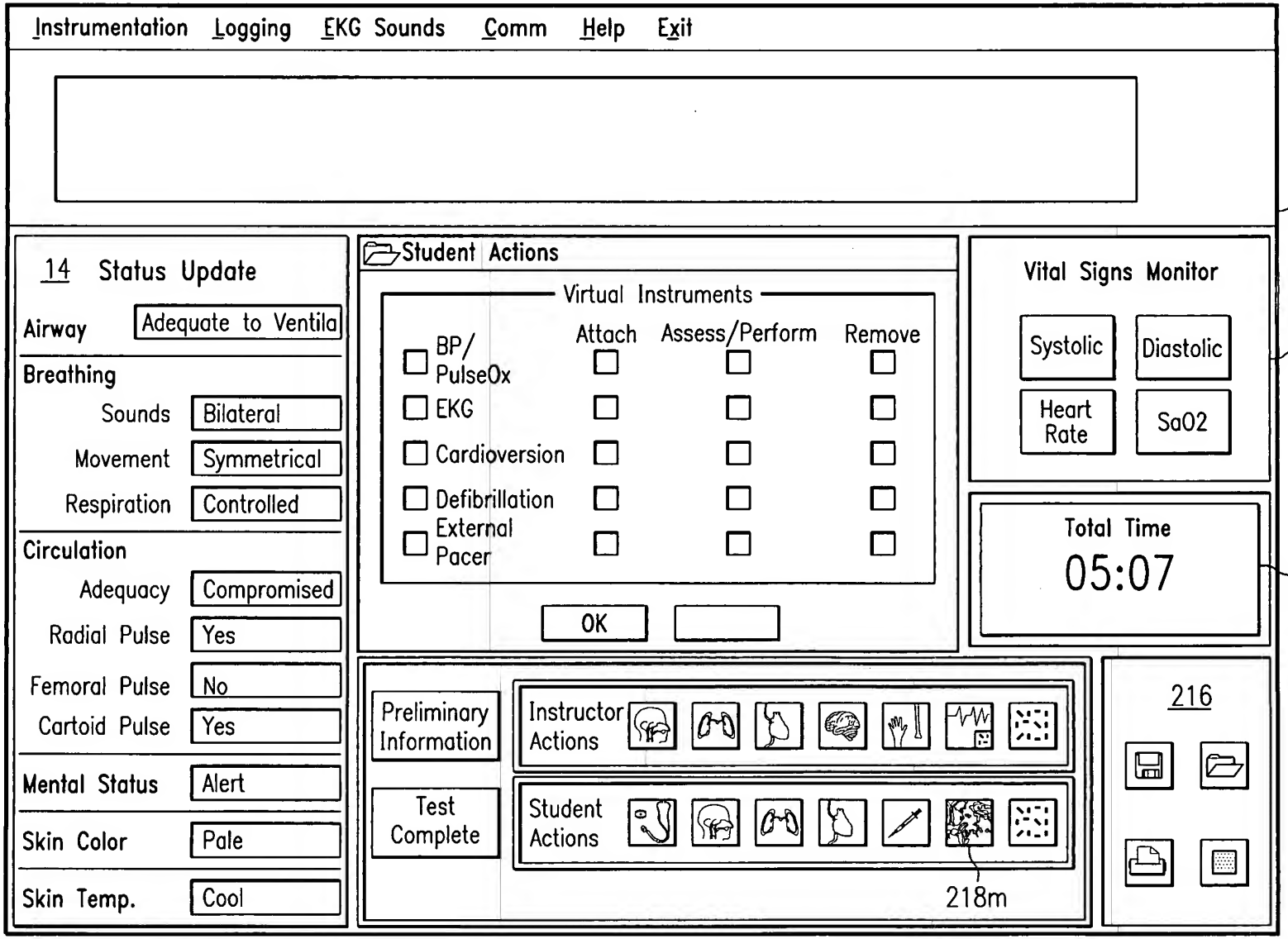
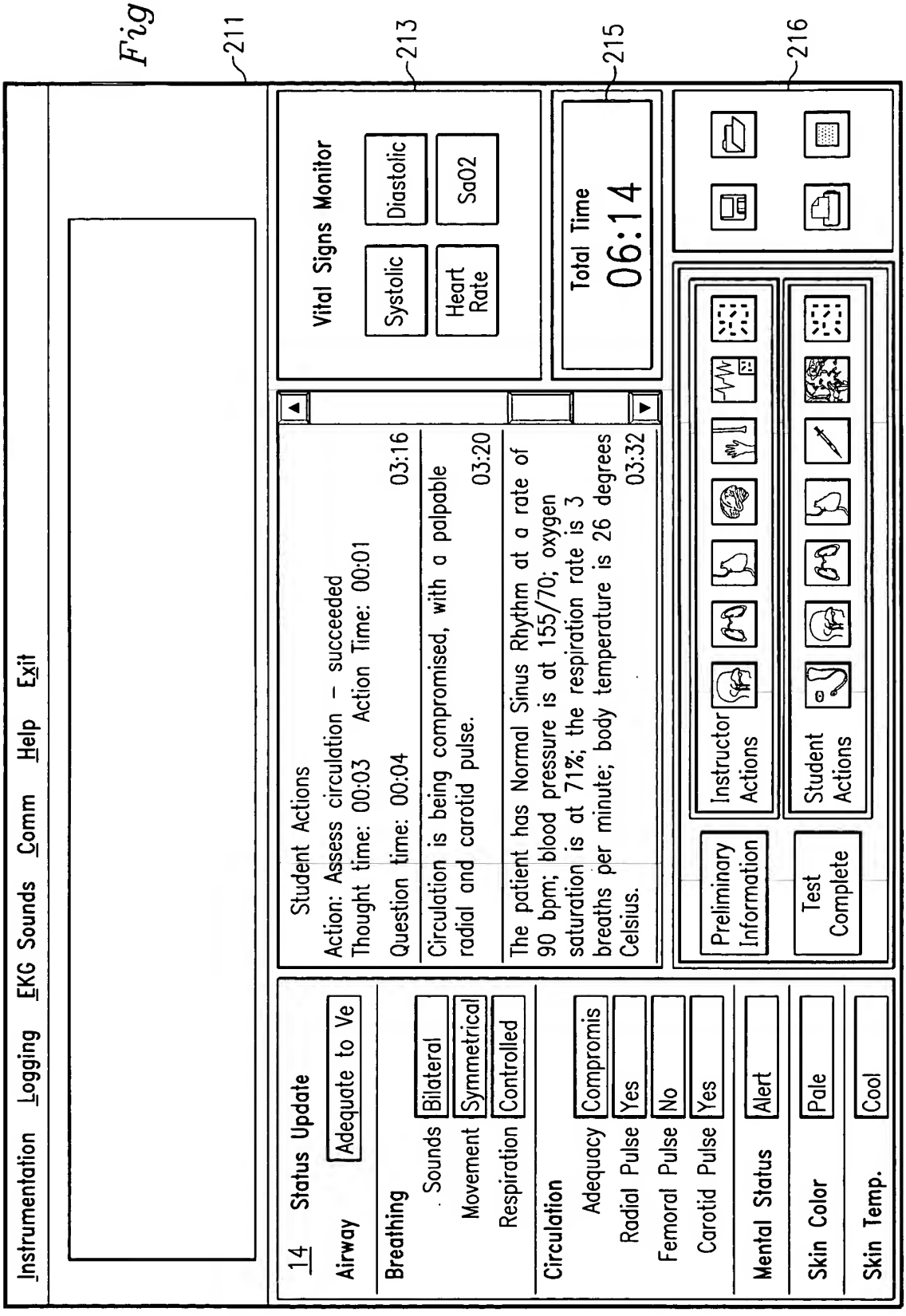

Instrumentation
Logging
EKG Sounds
Comm
Help
Exit
211
14 Status Update
Airway
Adequate to Ventila
Breathing
Sounds
Bilateral
Movement
Symmetrical
Respiration
Controlled
Circulation
Adequacy
Compromised
Radial Pulse
Yes
Femoral Pulse
No
Cartoid Pulse
Yes
Mental Status
Alert
Skin Color
Pale
Skin Temp.
Cool
Student Actions
Virtual Instruments
Attach
Assess/Perform
Remove
BP/ PulseOx
EKG
Cardioversion
Defibrillation
External Pacer
OK
Vital Signs Monitor
Systolic
Diastolic
Heart Rate
SaO2
213
Total Time
05:07
215
Preliminary Information
Test Complete
Instructor Actions
Student Actions
218m
216

Fig. 17e

Fig. 17f


211
213
215
216
Instrumentation Logging EKG Sounds Comm Help Exit
14 Status Update
Airway
Adequate to Ve
Breathing
Sounds
Bilateral
Movement
Symmetrical
Respiration
Controlled
Circulation
Adequacy
Compromis
Radial Pulse
Yes
Femoral Pulse
No
Carotid Pulse
Yes
Mental Status
Alert
Skin Color
Pale
Skin Temp.
Cool
Student Actions
Action: Assess circulation – succeeded
Thought time: 00:03 Action Time: 00:01
Question time: 00:04 03:16
Circulation is being compromised, with a palpable radial and carotid pulse. 03:20
The patient has Normal Sinus Rhythm at a rate of 90 bpm; blood pressure is at 155/70; oxygen saturation is at 71%; the respiration rate is 3 breaths per minute; body temperature is 26 degrees Celsius. 03:32
Vital Signs Monitor
Systolic
Diastolic
Heart Rate
SaO2
Total Time
06:14
Preliminary Information
Test Complete
Instructor Actions
Student Actions

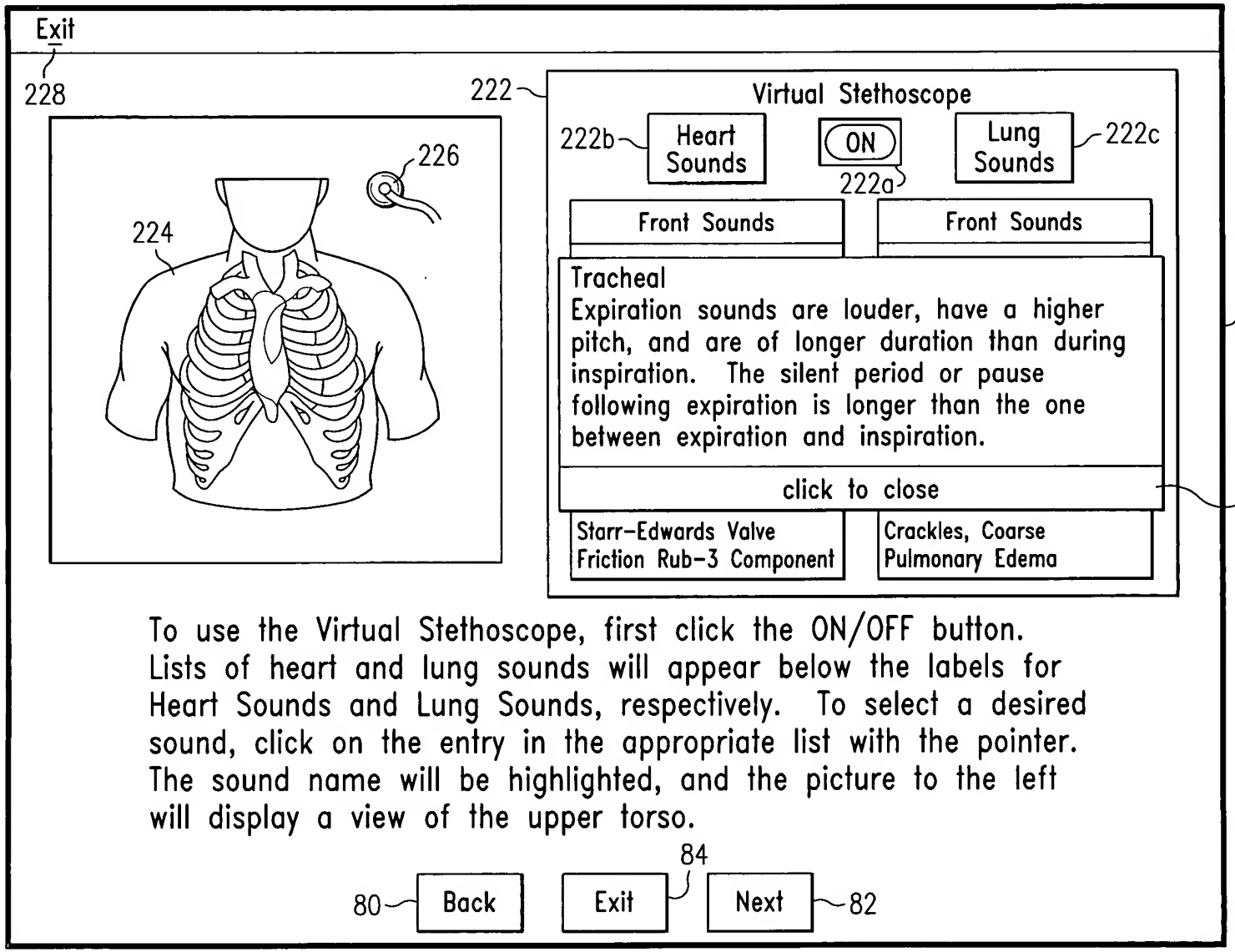
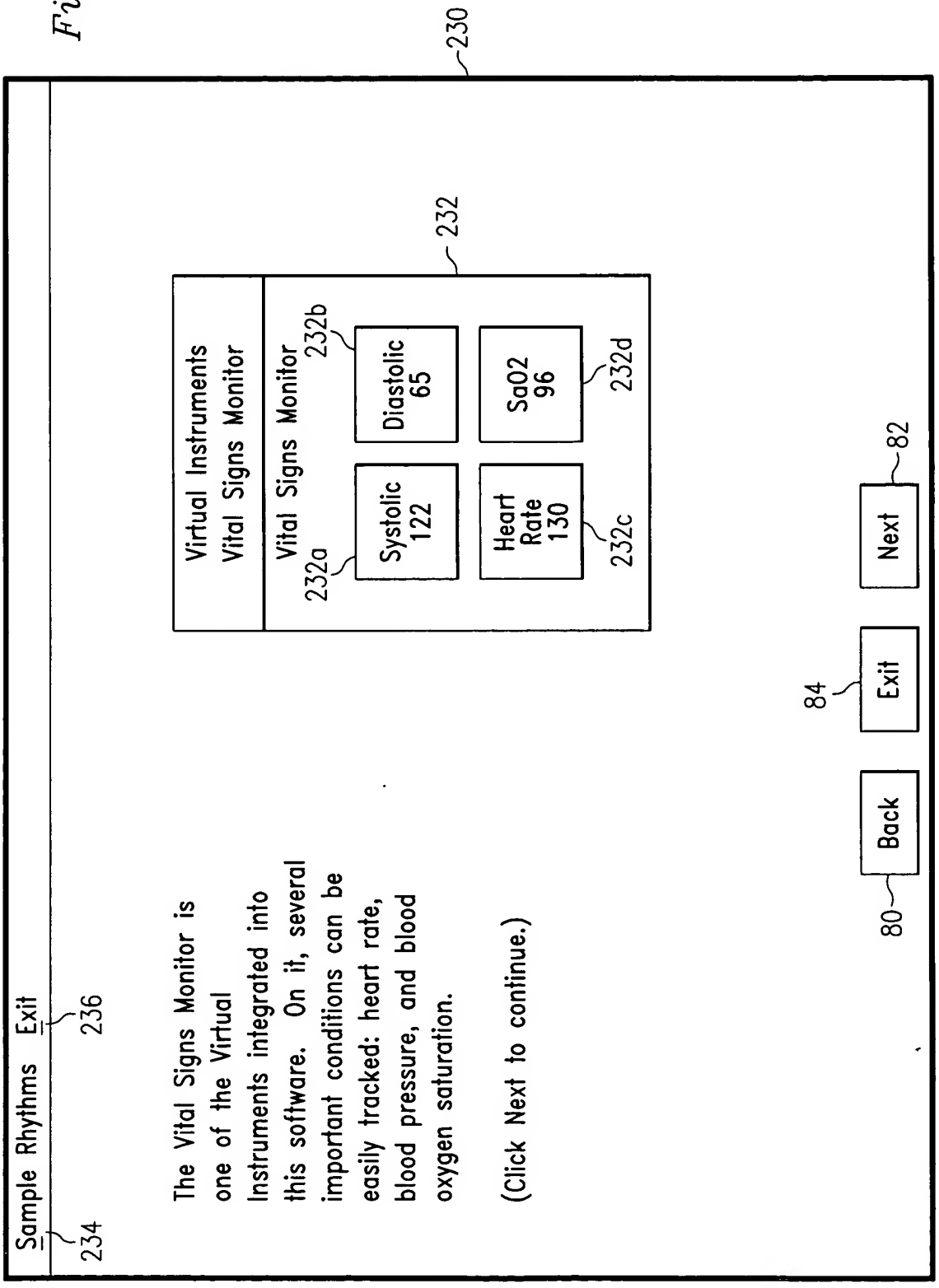

Exit
228
222
Virtual Stethoscope
222b
Heart Sounds
ON
222a
Lung Sounds
222c
226
224
Front Sounds
Front Sounds
Tracheal
Expiration sounds are louder, have a higher pitch, and are of longer duration than during inspiration. The silent period or pause following expiration is longer than the one between expiration and inspiration.
220
click to close
222d
Starr-Edwards Valve
Friction Rub-3 Component
Crackles, Coarse
Pulmonary Edema
To use the Virtual Stethoscope, first click the ON/OFF button. Lists of heart and lung sounds will appear below the labels for Heart Sounds and Lung Sounds, respectively. To select a desired sound, click on the entry in the appropriate list with the pointer. The sound name will be highlighted, and the picture to the left will display a view of the upper torso.
84
80
Back
Exit
Next
82

Fig. 18

Fig. 19


Sample Rhythms Exit
234
236
230
Virtual Instruments
Vital Signs Monitor
Vital Signs Monitor
232
232a
Systolic 122
232b
Diastolic 65
Heart Rate 130
232c
SaO2 96
232d
The Vital Signs Monitor is one of the Virtual Instruments integrated into this software. On it, several important conditions can be easily tracked: heart rate, blood pressure, and blood oxygen saturation.
(Click Next to continue.)
80
Back
84
Exit
Next
82

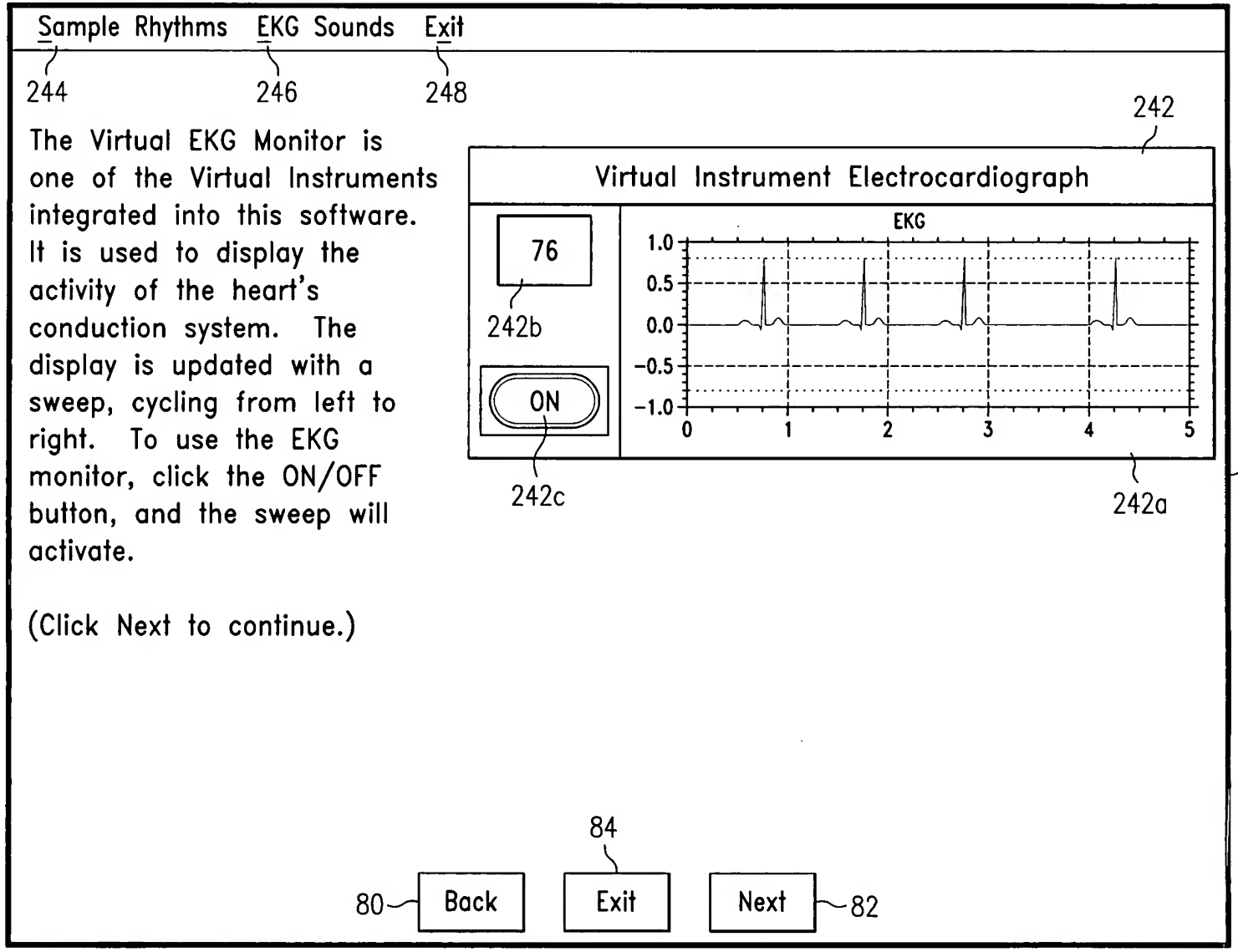


Fig. 20

CIP of 10/292,192
Eggert et al
Interactive Education System for Teaching Patient Care

Fig. 21

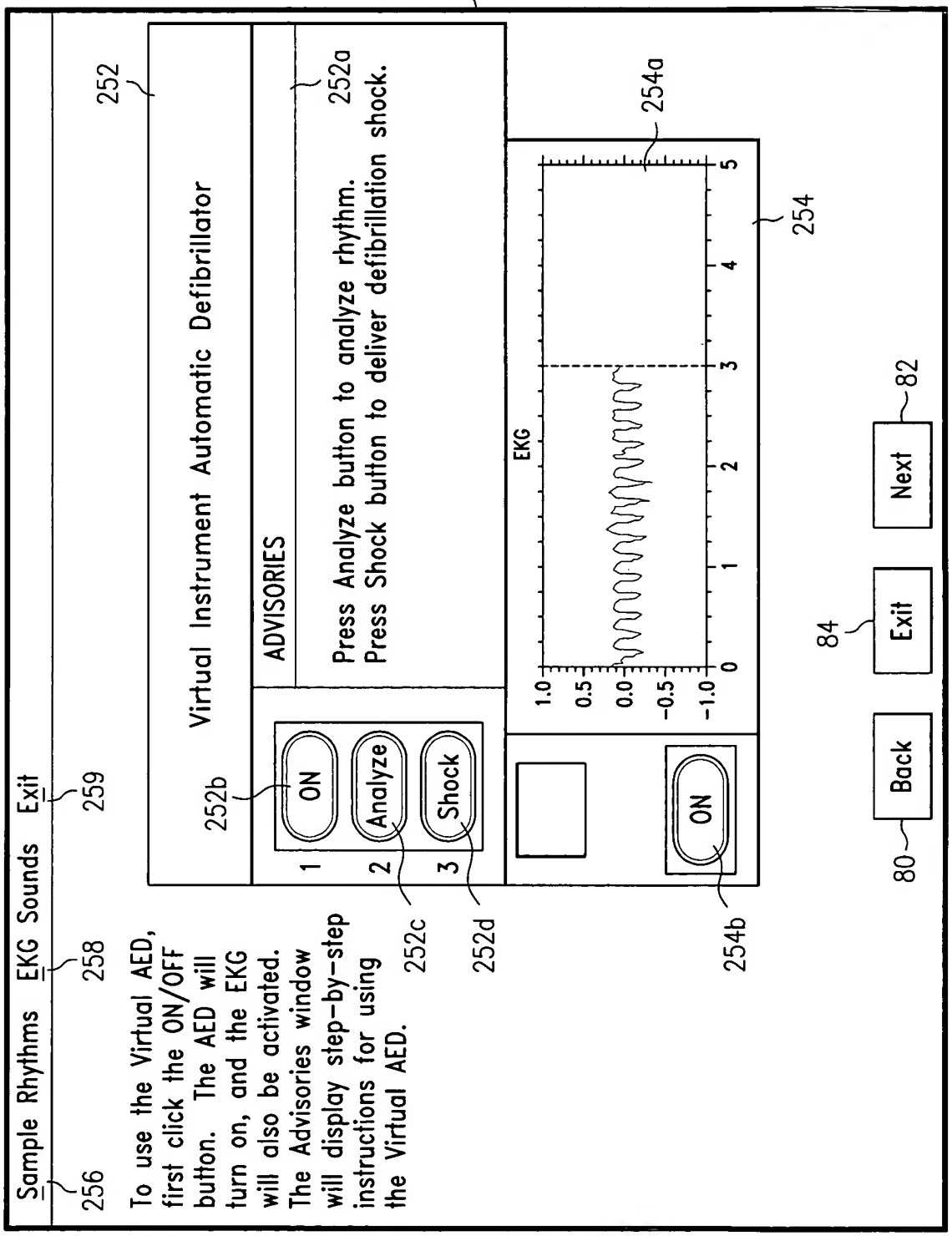

250
Sample Rhythms EKG Sounds Exit
256
258
259
252
Virtual Instrument Automatic Defibrillator
252b
ADVISORIES
252a
Press Analyze button to analyze rhythm.
Press Shock button to deliver defibrillation shock.
To use the Virtual AED, first click the ON/OFF button. The AED will turn on, and the EKG will also be activated. The Advisories window will display step-by-step instructions for using the Virtual AED.
1 ON
2 Analyze
3 Shock
252c
252d
254a
EKG
1.0
0.5
0.0
-0.5
-1.0
0
1
2
3
4
5
254
ON
254b
84
Exit
80
Back
Next
82

Fig. 22

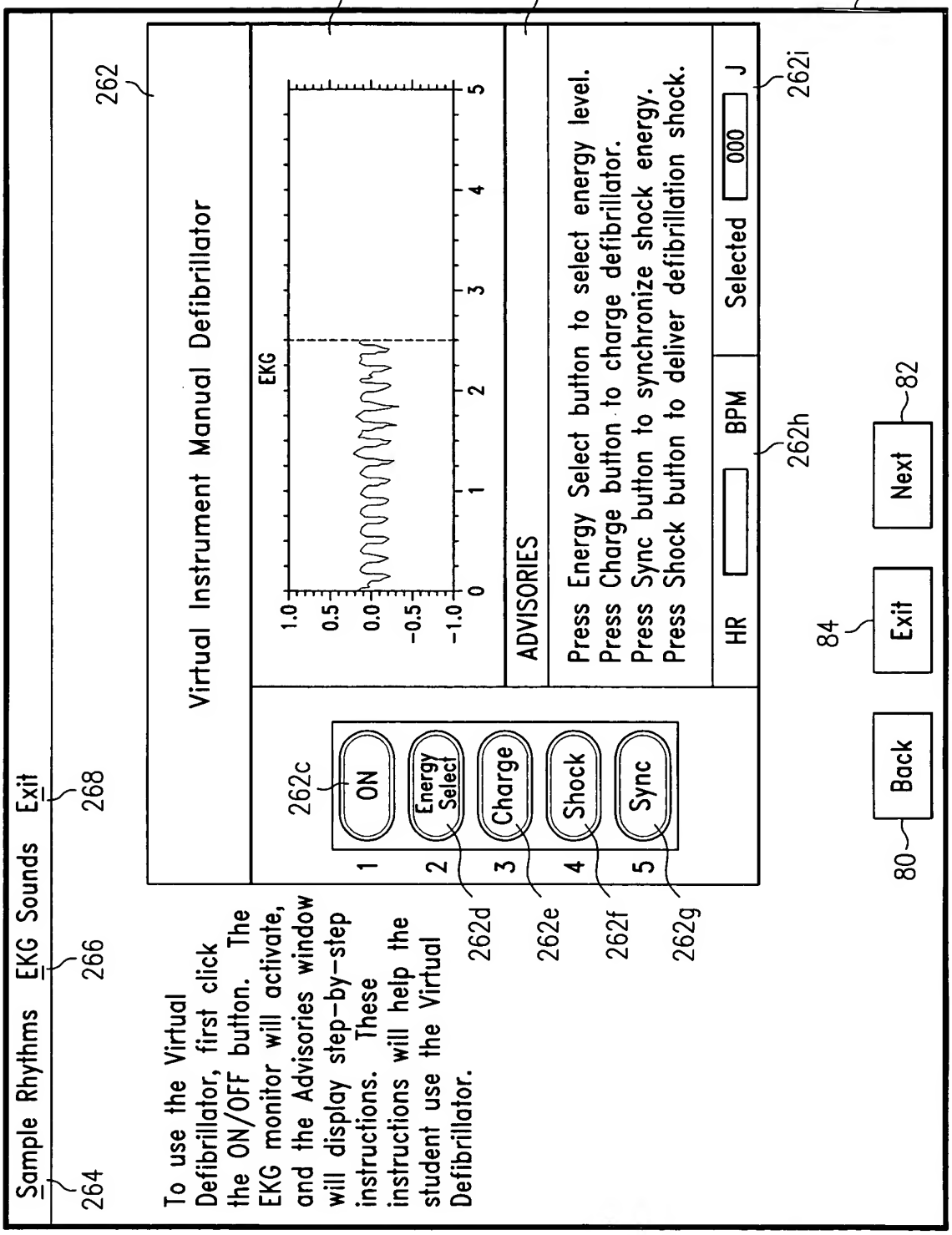
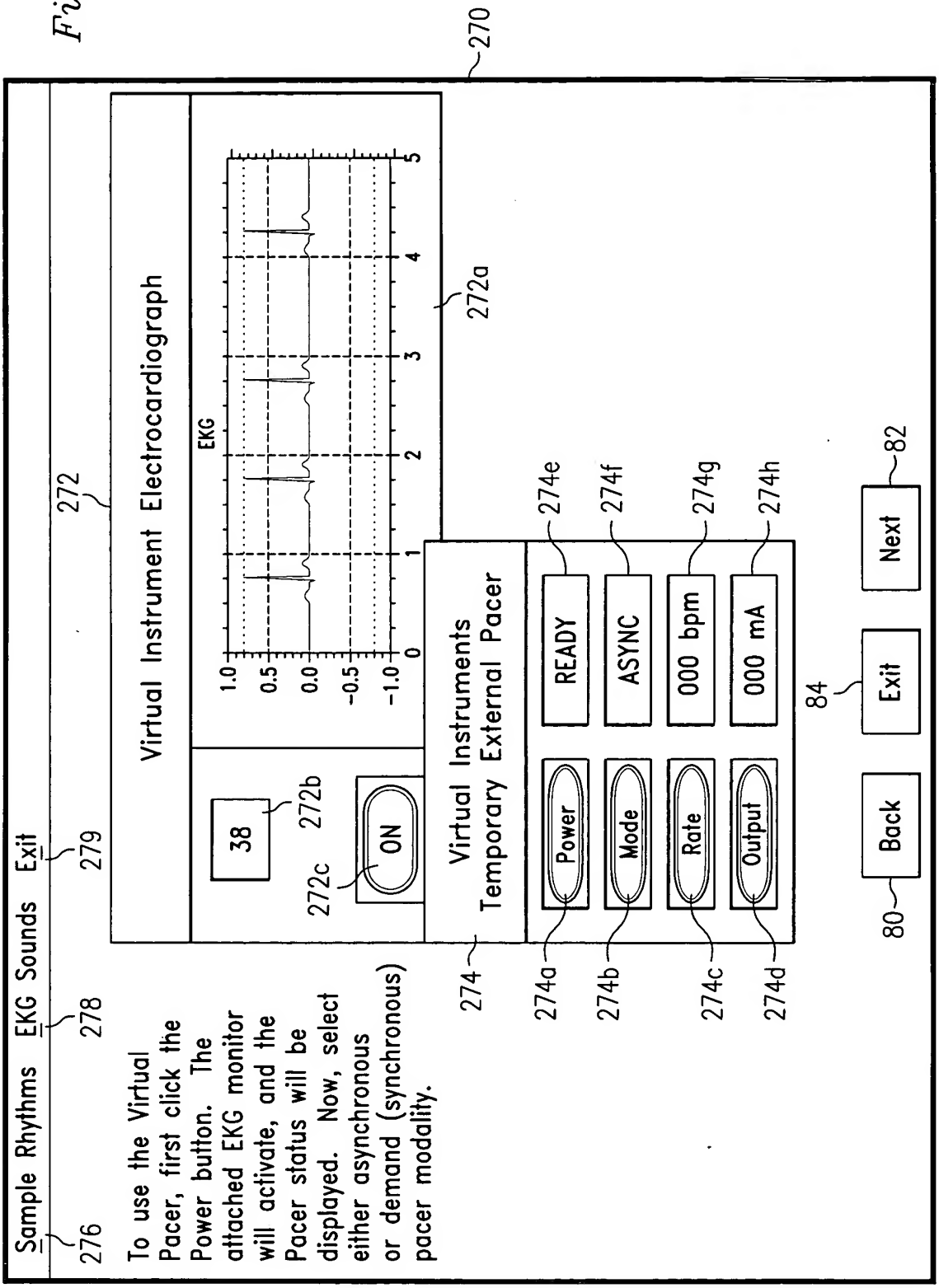

Sample Rhythms
EKG Sounds
Exit
264
266
268
262
Virtual Instrument Manual Defibrillator
262a
EKG
1.0
0.5
0.0
-0.5
-1.0
0
1
2
3
4
5
262b
ADVISORIES
Press Energy Select button to select energy level.
Press Charge button to charge defibrillator.
Press Sync button to synchronize shock energy.
Press Shock button to deliver defibrillation shock.
HR
BPM
Selected
000
J
262i
262h
260
262c
1
ON
2
Energy Select
3
Charge
4
Shock
5
Sync
262d
262e
262f
262g
To use the Virtual Defibrillator, first click the ON/OFF button. The EKG monitor will activate, and the Advisories window will display step-by-step instructions. These instructions will help the student use the Virtual Defibrillator.
80
Back
84
Exit
82
Next

Fig. 23


Sample Rhythms
EKG Sounds
Exit
276
278
279
272
Virtual Instrument Electrocardiograph
EKG
1.0
0.5
0.0
-0.5
-1.0
0
1
2
3
4
5
38
272b
272c
ON
272a
270
To use the Virtual Pacer, first click the Power button. The attached EKG monitor will activate, and the Pacer status will be displayed. Now, select either asynchronous or demand (synchronous) pacer modality.
Virtual Instruments
Temporary External Pacer
274
274a
Power
274b
Mode
274c
Rate
274d
Output
274e
READY
274f
ASYNC
274g
000 bpm
274h
000 mA
84
80
Back
Exit
82
Next

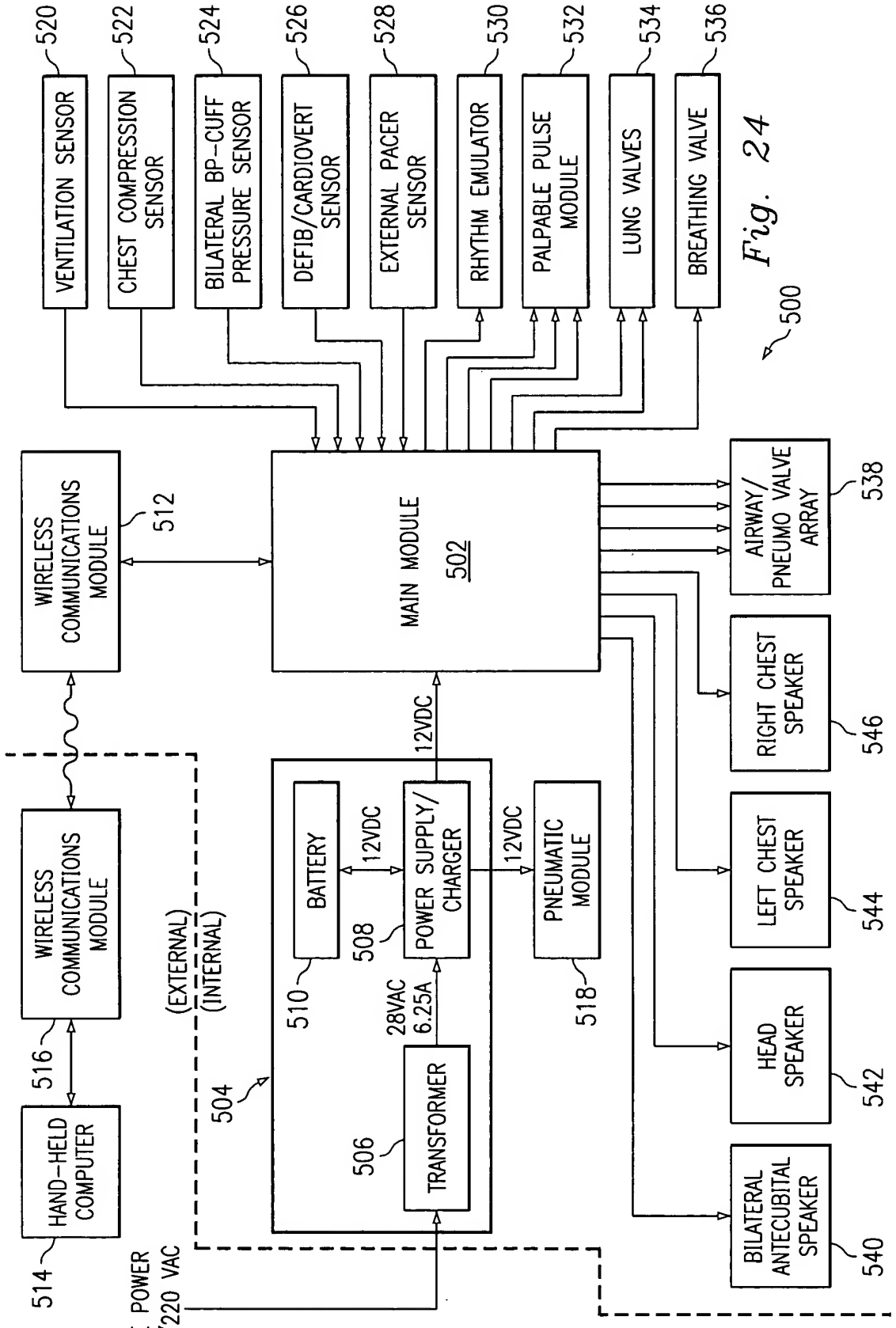
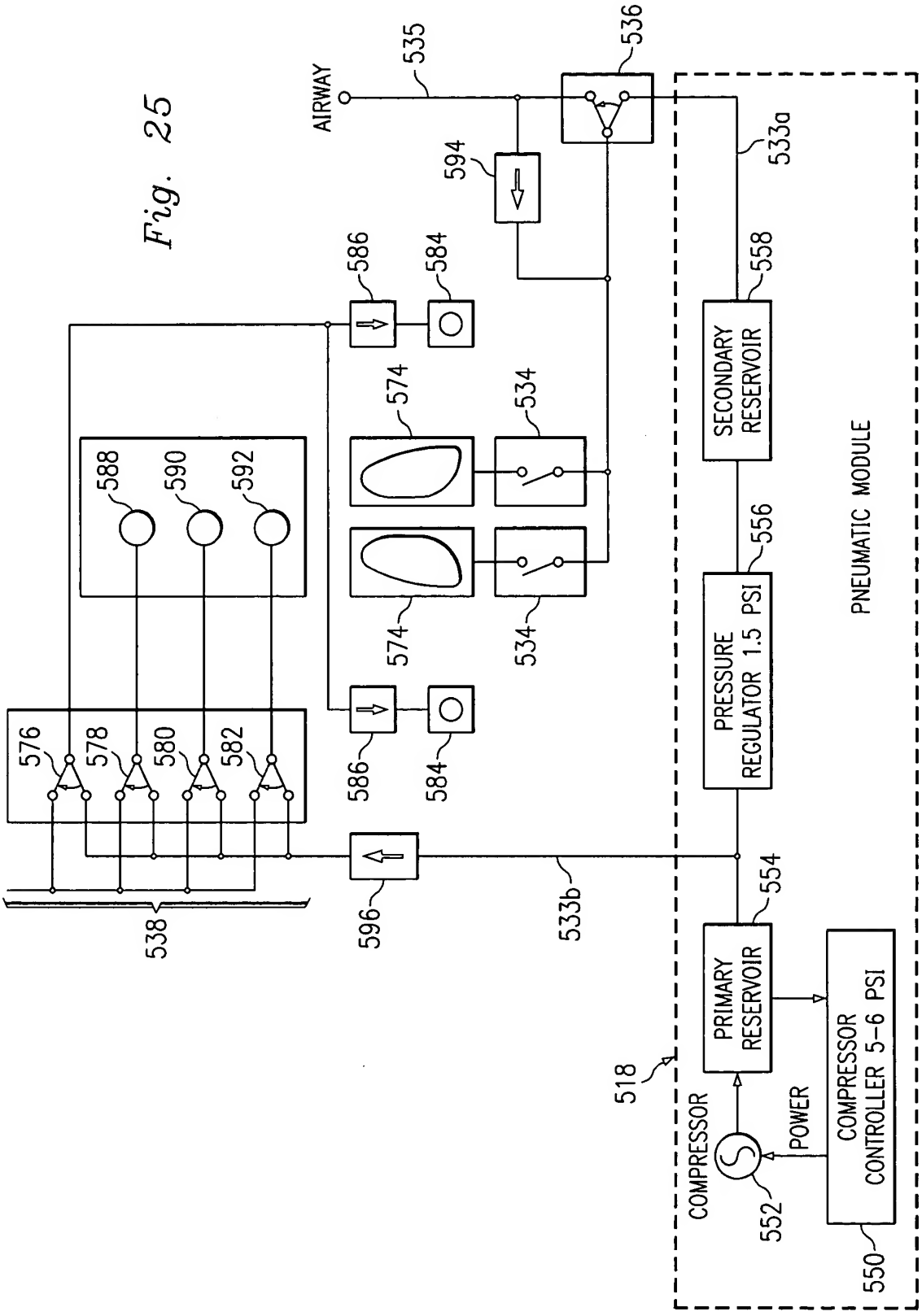

520
VENTILATION SENSOR
522
CHEST COMPRESSION SENSOR
524
BILATERAL BP-CUFF PRESSURE SENSOR
526
DEFIB/CARDIOVERT SENSOR
528
EXTERNAL PACER SENSOR
530
RHYTHM EMULATOR
532
PALPABLE PULSE MODULE
534
LUNG VALVES
536
BREATHING VALVE
500
WIRELESS COMMUNICATIONS MODULE
512
MAIN MODULE
502
AIRWAY/ PNEUMO VALVE ARRAY
538
RIGHT CHEST SPEAKER
546
LEFT CHEST SPEAKER
544
HEAD SPEAKER
542
BILATERAL ANTECUBITAL SPEAKER
540
WIRELESS COMMUNICATIONS MODULE
516
HAND-HELD COMPUTER
514
(EXTERNAL)
(INTERNAL)
504
BATTERY
510
12VDC
POWER SUPPLY/ CHARGER
508
12VDC
PNEUMATIC MODULE
518
28VAC 6.25A
TRANSFORMER
506
12VDC
LINE POWER 110/220 VAC

Fig. 24

Fig. 25


AIRWAY
535
536
533a
594
586
584
558
SECONDARY RESERVOIR
574
534
588
590
592
556
PRESSURE REGULATOR 1.5 PSI
PNEUMATIC MODULE
576
578
580
582
554
596
533b
538
PRIMARY RESERVOIR
518
COMPRESSOR
POWER
COMPRESSOR CONTROLLER 5-6 PSI
552
550

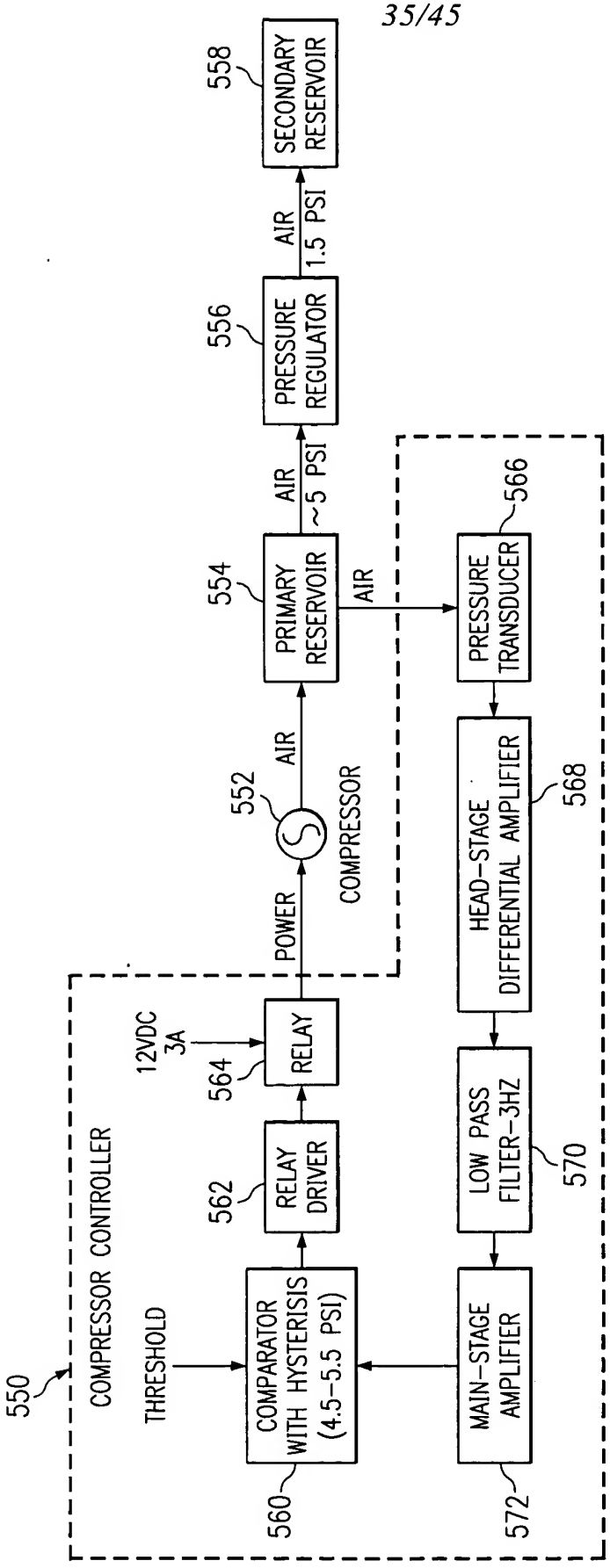

550
COMPRESSOR CONTROLLER
THRESHOLD
COMPARATOR WITH HYSTERISIS (4.5–5.5 PSI)
560
RELAY DRIVER
562
12VDC 3A
564
RELAY
POWER
552
AIR
COMPRESSOR
PRIMARY RESERVOIR
554
AIR
~5 PSI
PRESSURE REGULATOR
556
AIR
1.5 PSI
SECONDARY RESERVOIR
558
AIR
PRESSURE TRANSDUCER
566
HEAD–STAGE DIFFERENTIAL AMPLIFIER
568
LOW PASS FILTER–3HZ
570
MAIN–STAGE AMPLIFIER
572

Fig. 26

Fig. 27

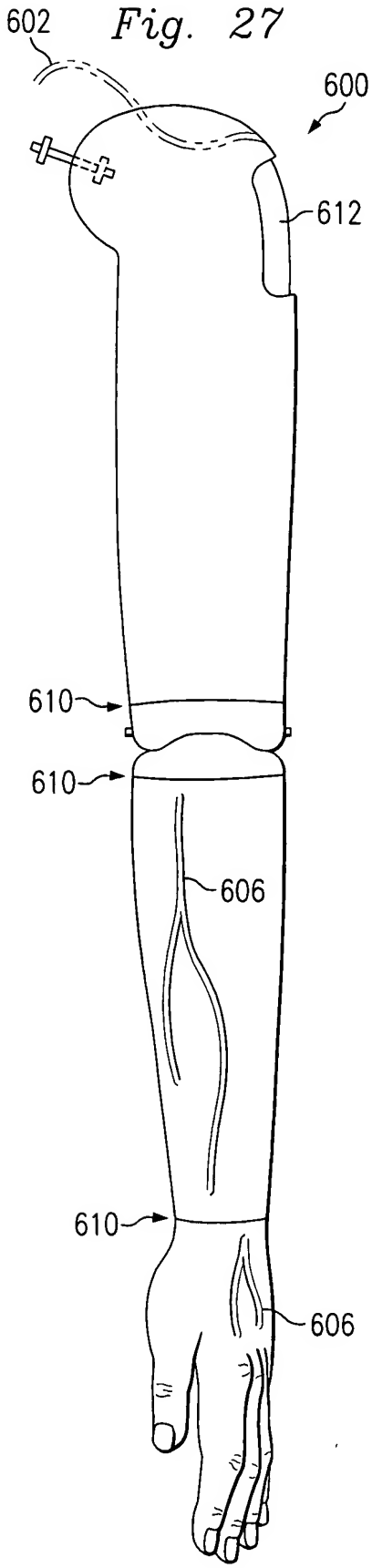
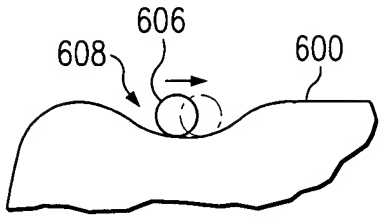


Fig. 28



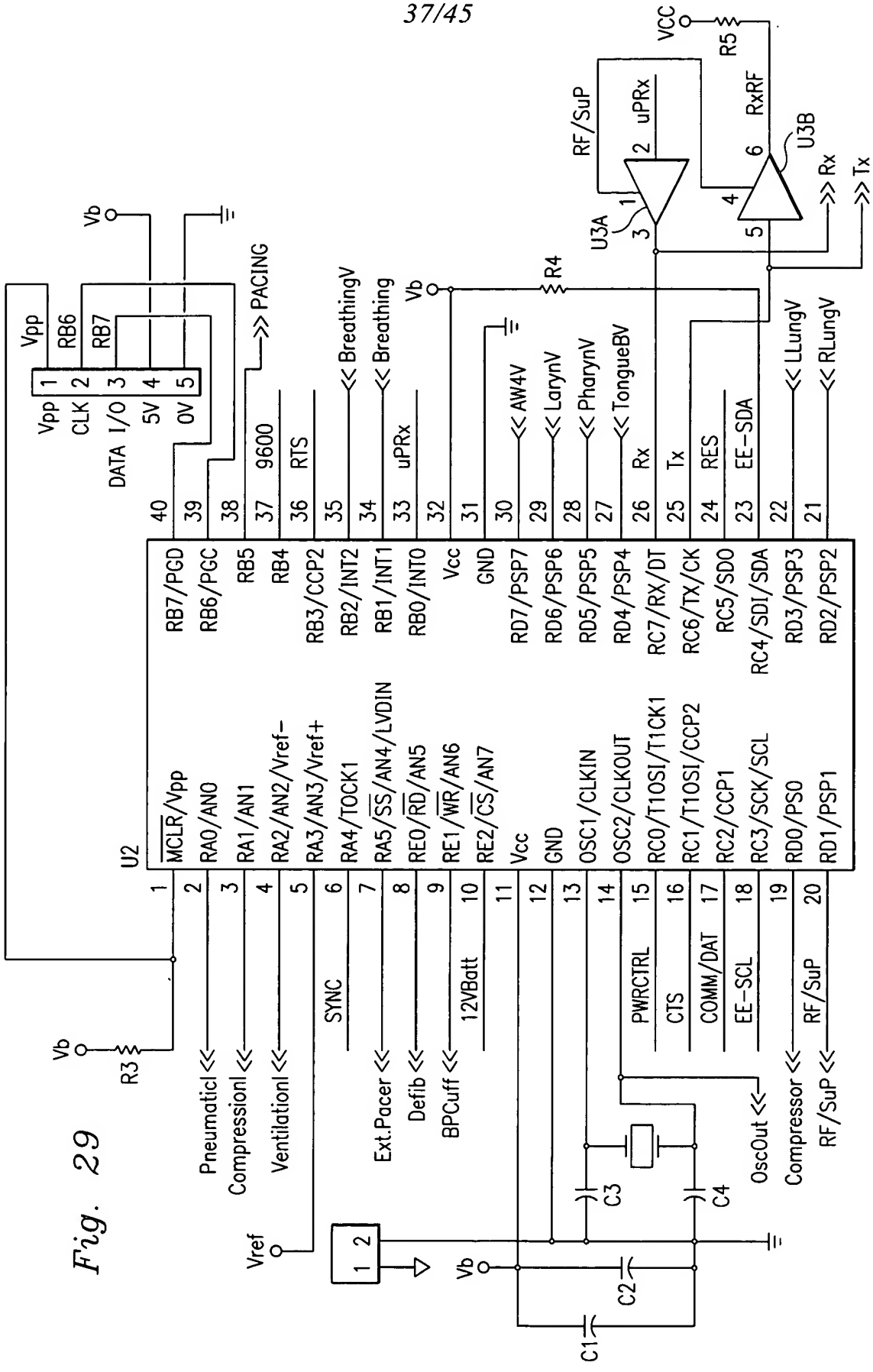

U2
MCLR/Vpp
RA0/AN0
RA1/AN1
RA2/AN2/Vref-
RA3/AN3/Vref+
RA4/TOCK1
RA5/SS/AN4/LVDIN
RE0/RD/AN5
RE1/WR/AN6
RE2/CS/AN7
Vcc
GND
OSC1/CLKIN
OSC2/CLKOUT
RC0/T1OSI/T1CK1
RC1/T1OSI/CCP2
RC2/CCP1
RC3/SCK/SCL
RD0/PS0
RD1/PSP1
RB7/PGD
RB6/PGC
RB5
RB4
RB3/CCP2
RB2/INT2
RB1/INT1
RB0/INT0
Vcc
GND
RD7/PSP7
RD6/PSP6
RD5/PSP5
RD4/PSP4
RC7/RX/DT
RC6/TX/CK
RC5/SDO
RC4/SDI/SDA
RD3/PSP3
RD2/PSP2
Vpp
RB6
RB7
Vpp
CLK
I/O
5V
0V
DATA
Vb
>> PACING
9600
RTS
<< BreathingV
<< Breathing
uPRx
Vb
R4
<< AW4V
<< LarynV
<< PharynV
<< TongueBV
Rx
Tx
RES
EE-SDA
<< LLungV
<< RLungV
VCC
R5
RF/SuP
uPRx
U3A
U3B
RxRF
>> Rx
>> Tx
R3
Vb
Pneumatic<<
Compression<<
Ventilation<<
SYNC
Ext.Pacer <<
Defib <<
BPCuff <<
12VBatt
PWRCTRL
CTS
COMM/DAT
EE-SCL
OscOut <<
Compressor <<
RF/SuP
RF/SuP <<
Vref
Vb
C1
C2
C3
C4

Fig. 29

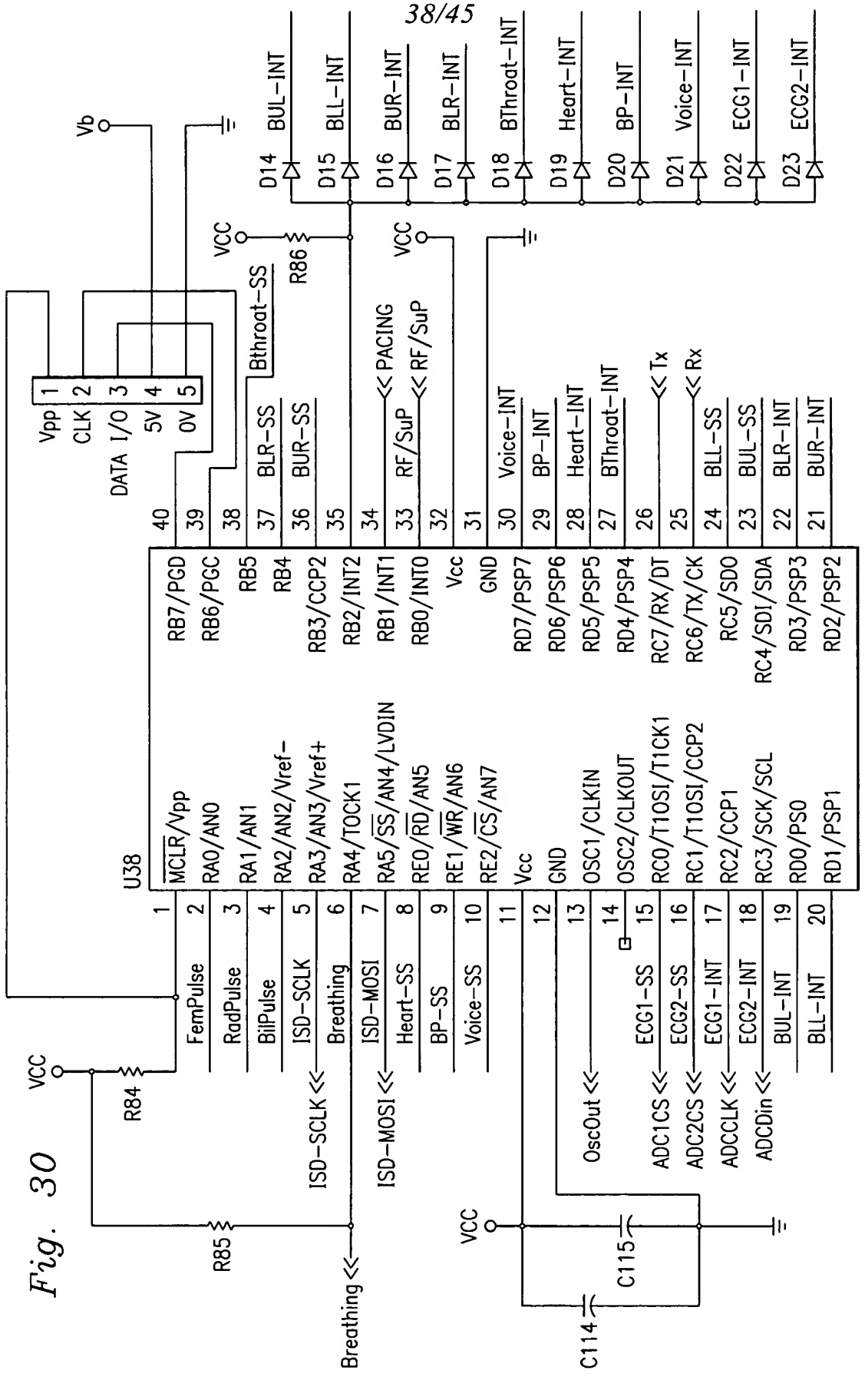

U38
MCLR/Vpp
RA0/AN0
RA1/AN1
RA2/AN2/Vref-
RA3/AN3/Vref+
RA4/TOCK1
RA5/SS/AN4/LVDIN
RE0/RD/AN5
RE1/WR/AN6
RE2/CS/AN7
Vcc
GND
OSC1/CLKIN
OSC2/CLKOUT
RC0/T1OSI/T1CK1
RC1/T1OSI/CCP2
RC2/CCP1
RC3/SCK/SCL
RD0/PSO
RD1/PSP1
RB7/PGD
RB6/PGC
RB5
RB4
RB3/CCP2
RB2/INT2
RB1/INT1
RB0/INT0
Vcc
GND
RD7/PSP7
RD6/PSP6
RD5/PSP5
RD4/PSP4
RC7/RX/DT
RC6/TX/CK
RC5/SDO
RC4/SDI/SDA
RD3/PSP3
RD2/PSP2
Vpp
CLK
DATA I/O
5V
0V
Bthroat-SS
BLR-SS
BUR-SS
<< PACING
<< RF/SuP
<< RF/SuP
Voice-INT
BP-INT
Heart-INT
BThroat-INT
<< Tx
<< Rx
BLL-SS
BUL-SS
BLR-INT
BUR-INT
BUL-INT
BLL-INT
Vb
VCC
R84
R85
R86
C114
C115
FemPulse
RadPulse
BilPulse
ISD-SCLK
Breathing
ISD-MOSI
Heart-SS
BP-SS
Voice-SS
ECG1-SS
ECG2-SS
ECG1-INT
ECG2-INT
BUL-INT
BLL-INT
OscOut <<
ADC1CS <<
ADC2CS <<
ADCCLK <<
ADCDin <<
ISD-SCLK <<
ISD-MOSI <<
Breathing <<
D14 BUL-INT
D15 BLL-INT
D16 BUR-INT
D17 BLR-INT
D18 BThroat-INT
D19 Heart-INT
D20 BP-INT
D21 Voice-INT
D22 ECG1-INT
D23 ECG2-INT

Fig. 30

Fig. 31

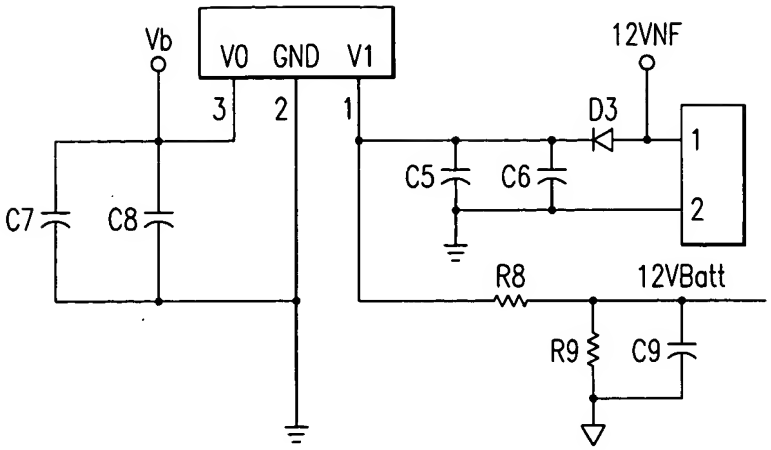


Fig. 32

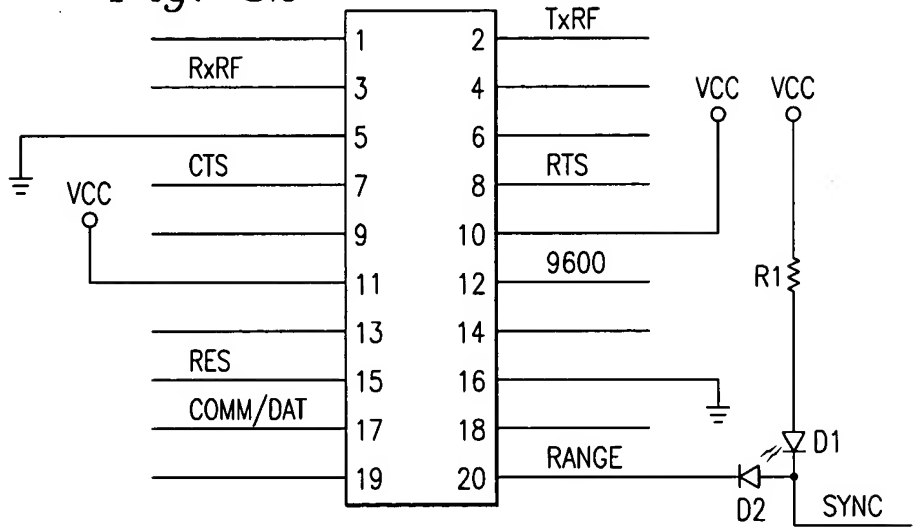


Fig. 33

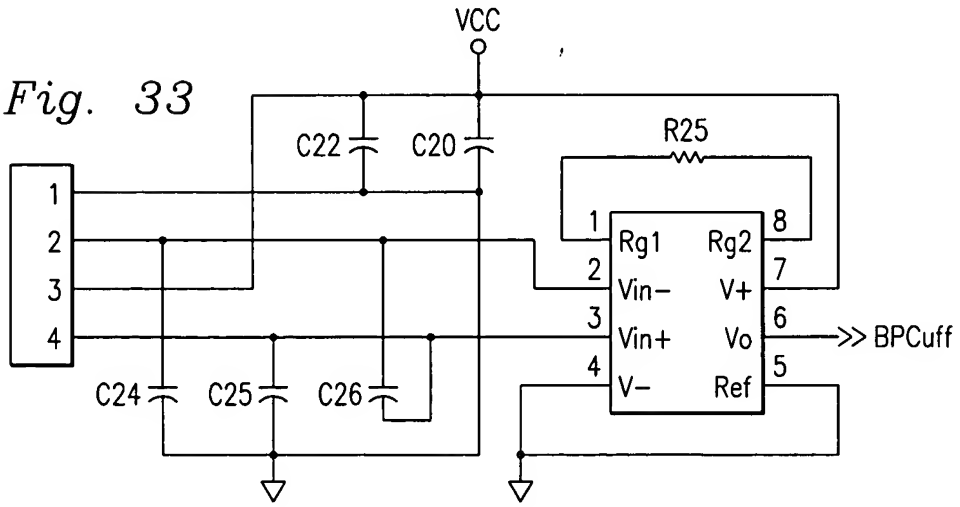


Fig. 34

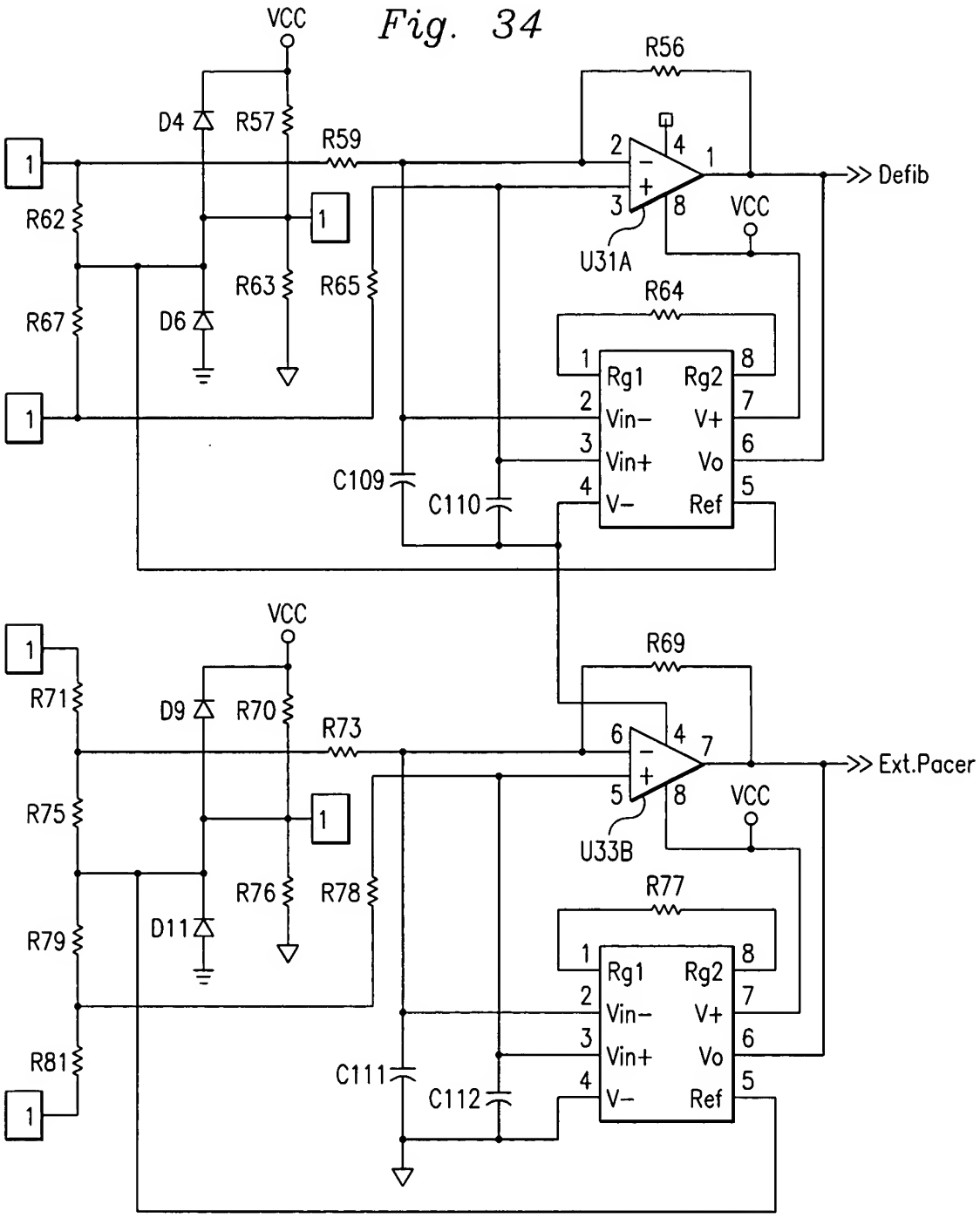

VCC
R56
D4
R57
R59
1
R62
R63
R65
R67
D6
U31A
>> Defib
R64
Rg1
Rg2
Vin−
V+
Vin+
Vo
V−
Ref
C109
C110
VCC
R69
R71
D9
R70
R73
R75
R76
R78
R79
D11
U33B
>> Ext.Pacer
R77
R81
C111
C112

Fig. 35a

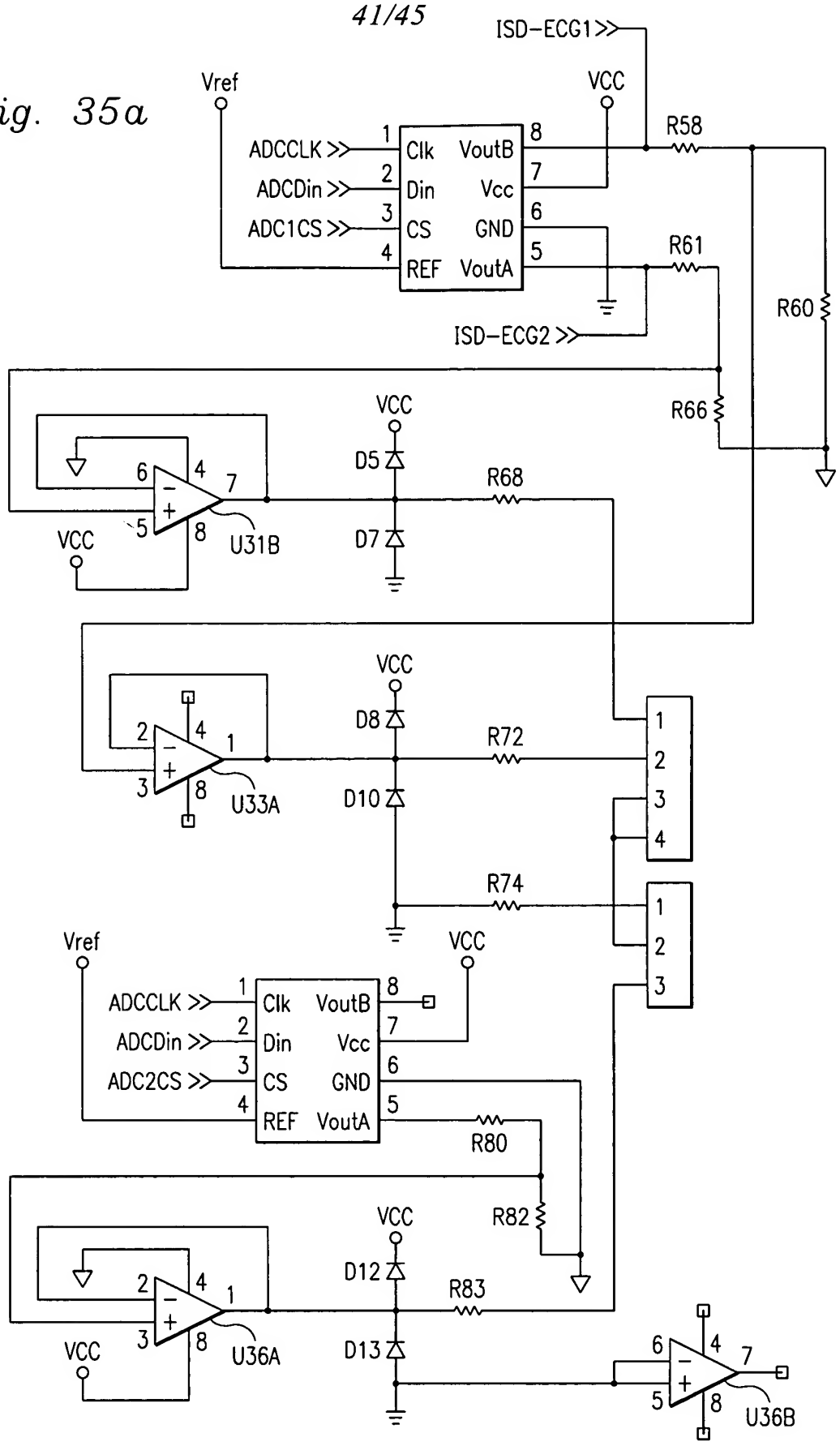

ISD-ECG1
Vref
VCC
ADCCLK
ADCDin
ADC1CS
Clk
Din
CS
REF
VoutB
Vcc
GND
VoutA
R58
R61
R60
ISD-ECG2
R66
D5
R68
D7
U31B
D8
R72
D10
U33A
R74
ADC2CS
R80
R82
D12
R83
D13
U36A
U36B

Fig. 35b

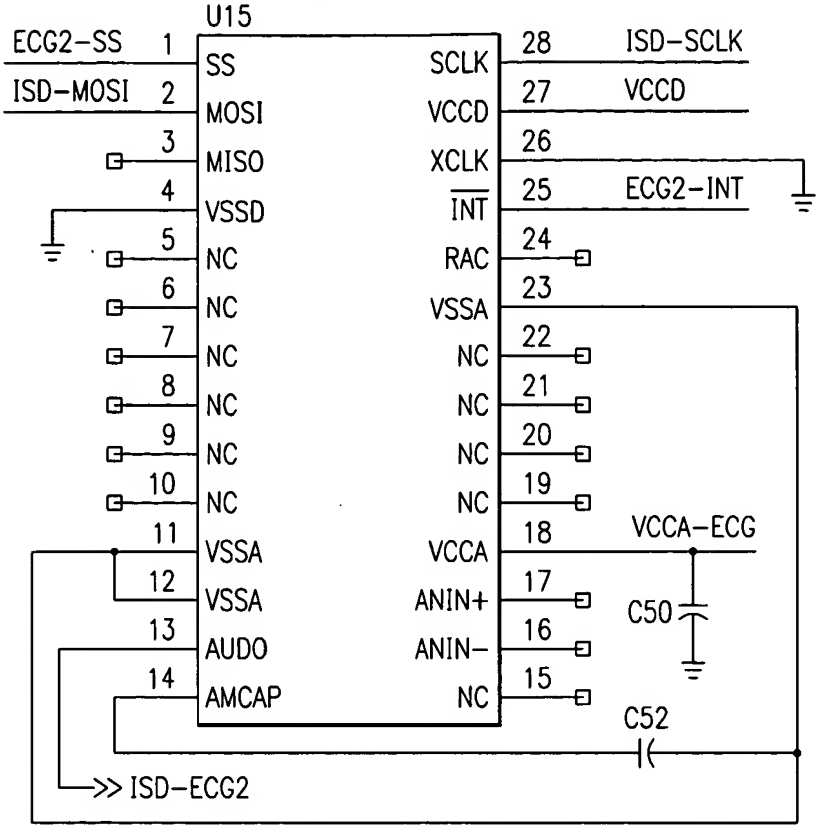
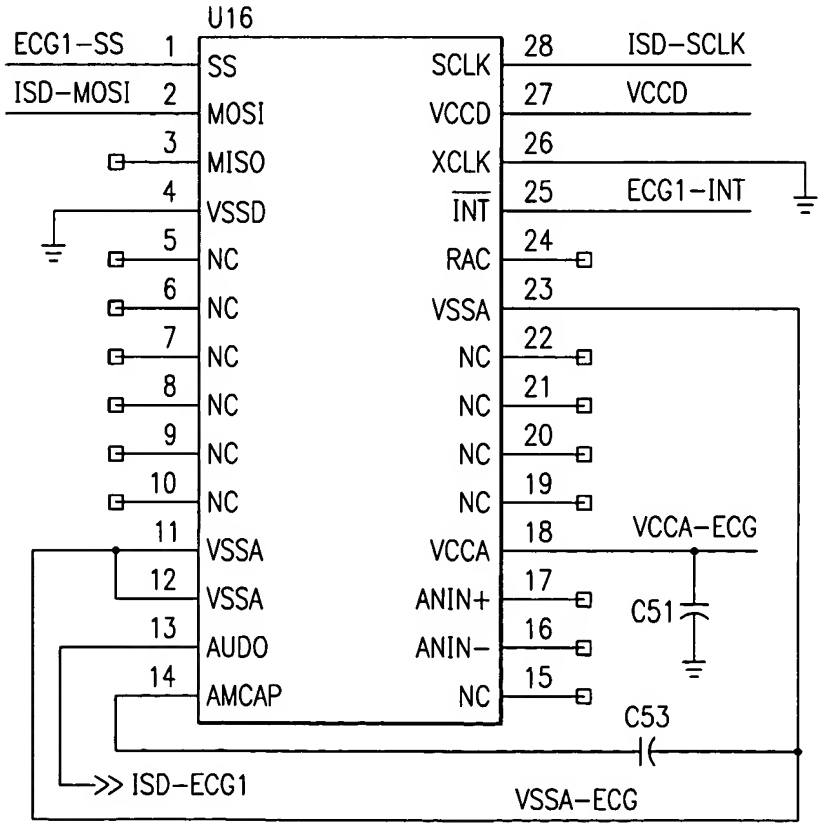


Fig. 35c



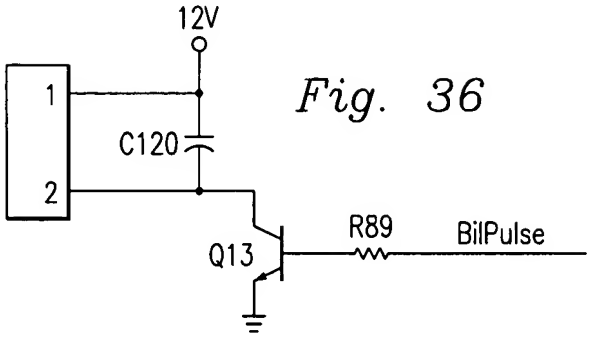


Fig. 36

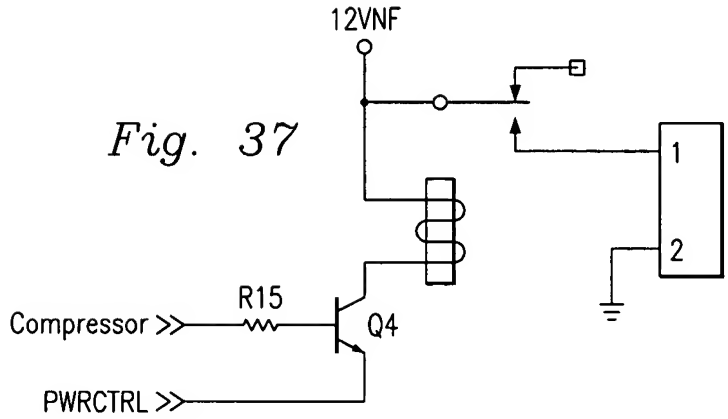


Fig. 37

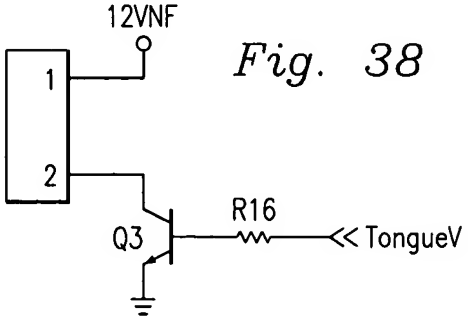


Fig. 38

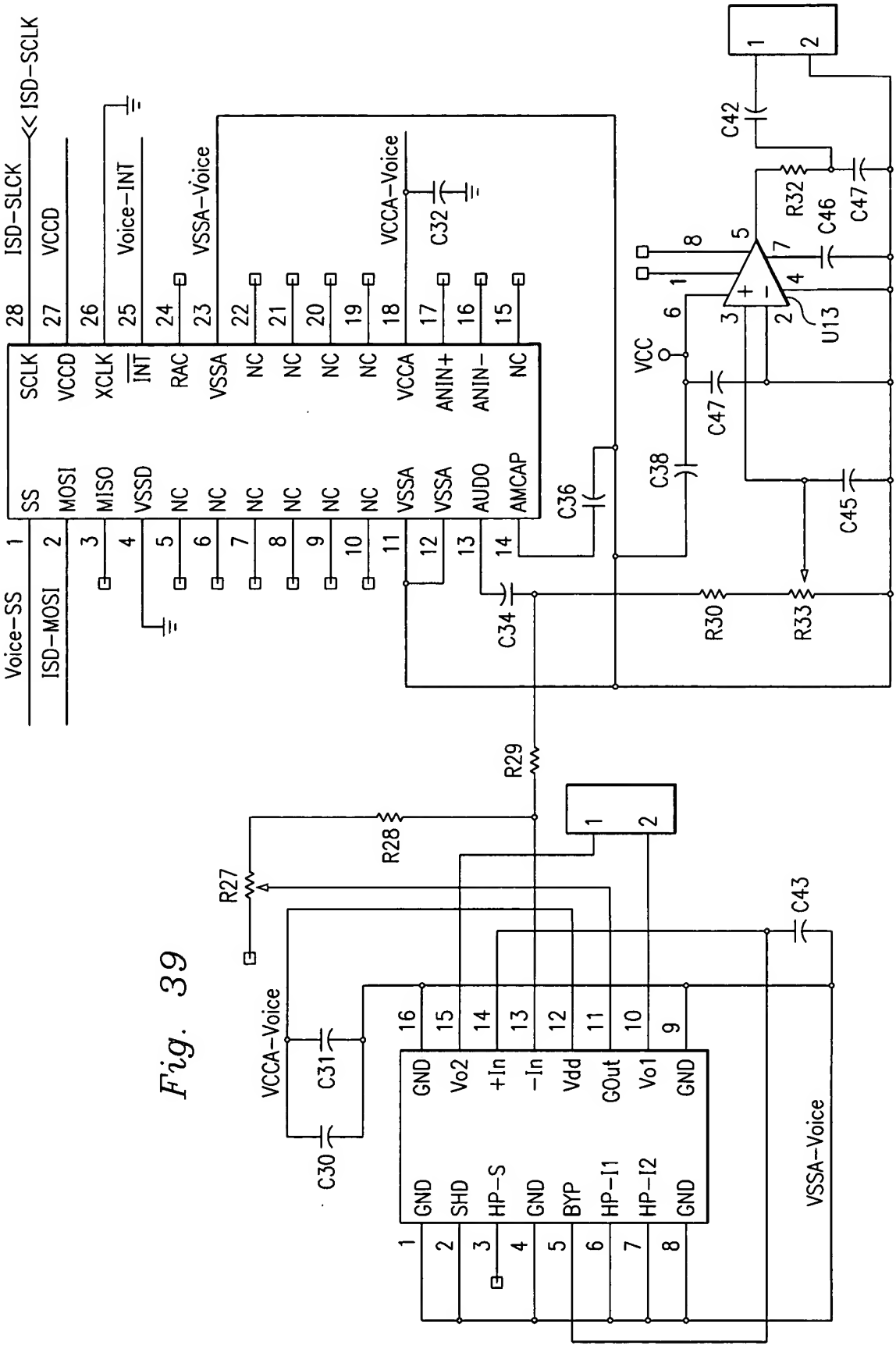
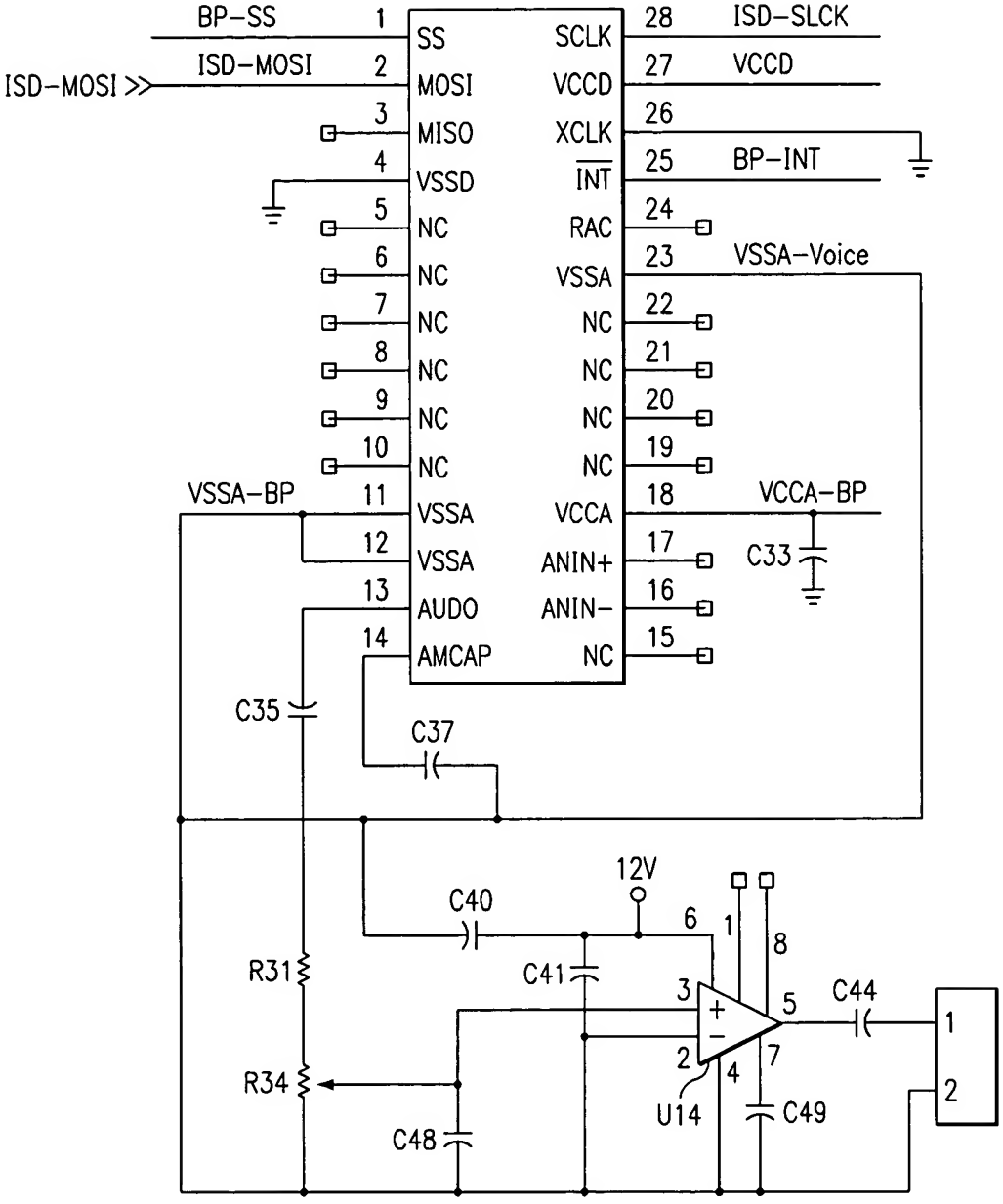

Voice-SS
ISD-MOSI
ISD-SLCK
SS
MOSI
MISO
VSSD
SCLK
VCCD
XCLK
INT
RAC
VSSA
NC
VCCA
ANIN+
ANIN-
AUDO
AMCAP
VSSA-Voice
VCCA-Voice
Voice-INT
C32
C34
C36
C38
C42
C45
C46
C47
R27
R28
R29
R30
R32
R33
U13
VCC
VCCA-Voice
VSSA-Voice
C30
C31
C43
GND
Vo2
+In
-In
Vdd
GOut
Vo1
SHD
HP-S
BYP
HP-I1
HP-I2

Fig. 39

Fig. 40


BP-SS
ISD-MOSI
ISD-MOSI >>
SS
MOSI
MISO
VSSD
NC
NC
NC
NC
NC
NC
VSSA-BP
VSSA
VSSA
AUDO
AMCAP
SCLK
VCCD
XCLK
INT
RAC
VSSA
NC
NC
NC
NC
VCCA
ANIN+
ANIN-
NC
ISD-SLCK
VCCD
BP-INT
VSSA-Voice
VCCA-BP
C33
C35
C37
C40
12V
R31
R34
C41
C48
C44
C49
U14